The American City

AUGUST 1956

Population ups and downs do not affect Ocean City's Texaco-paved streets

Eighth Street, Ocean City, N. J., which leads to the resort's popular boardwalk, is paved with resilient, long-wearing Texaco Asphaltic Concrete. (Photo by Senior Studio, Ocean City)

The winter population of Ocean City, N. J. is 7,500. This soars to approximately 150,000 during the summer months. Traffic on the popular Jersey shore resort's streets multiplies in proportion.

Summer or winter, the performance of Ocean City's resilient, rugged Texaco Asphalt paving is uniformly satisfactory. A heavy-duty Texaco surface of the hot-mix, hot-laid type serves Asbury Avenue, principal business street of the community. The speed with which it is laid, its lasting smoothness, long life and low upkeep cost account for the construction of this type of paving on a substantial portion of the Ocean City street system.

Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils offer the municipal official a number of heavy-duty, intermediate and low-cost types of street construction. Whatever your paving problem, one of these types will meet your requirements in all respects. Two helpful booklets, which furnish information concerning methods and materials recommended for all Asphalt street types, can be obtained without obligation by directing a request to our nearest office.

Views of Texaco Asphaltic Concrete paving under construction and completed on Asbury Avenue, Ocean City's principal business thoroughfare.

CONTRACTOR . . . A. E. Stone, Inc., Pleasantville, N. J.

MEMBER

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York City 17

Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Minneapolis 3 Philadelphia 2 Richmond 19

TEXACO

TEXACO ASPHALT

AUGUST 1956

The American City

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The Cover Picture

A new electric fountain of Greater Pittsburgh Airport has become one of the wonders of the Steel and Aluminum and Glass City. General Electric floodlights and controls turn the plumes of water into orange, green and violet streams and sprays. See page 152 for the story.

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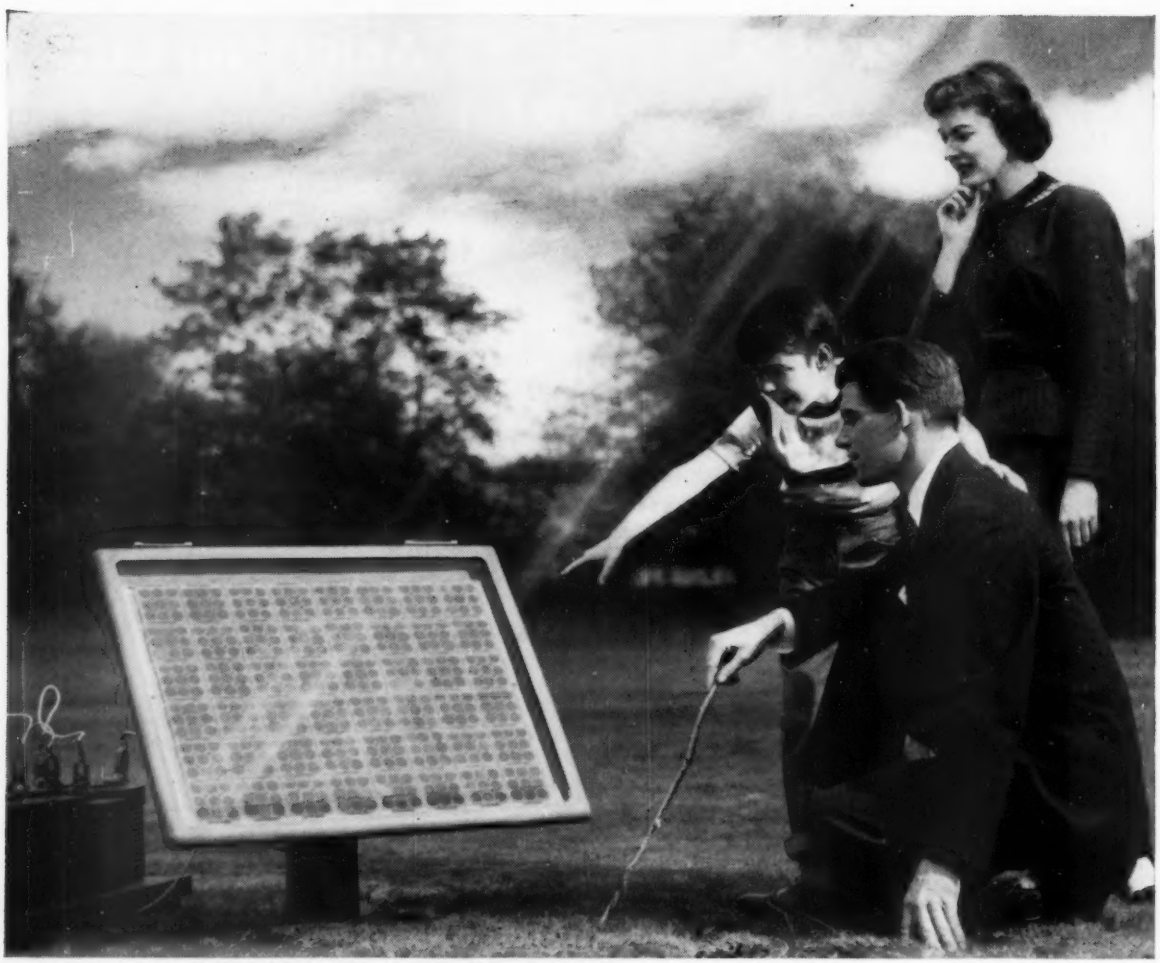

Something New under the Sun. It's the Bell Solar Battery, made of thin discs of silicon, an ingredient of common sand. It converts the sun's rays directly into usable amounts of electricity. The storage batteries beside the solar battery store up its electricity for night use.

Bell System Solar Battery Converts Sun's Rays into Electricity!

Bell Telephone Laboratories invention has great possibilities for telephone service and for all mankind

Ever since Archimedes, men have been searching for the secret of the sun.

For it is known that the same kindly rays that help the flowers and the grains and the fruits to grow also send us almost limitless power . . . nearly as much every three days as in all known reserves of coal, oil and uranium.

If this energy could be put to use—instead of going to waste—there would be enough to turn every wheel and light every lamp that mankind would ever need.

The dream of ages has been brought closer by the Bell System Solar Battery. It was invented at the Bell Telephone Laboratories after long research and first announced in 1954. Since then its efficiency has been doubled and its usefulness extended.

There's still much to be done before the battery's possibilities in telephony and for other uses are fully developed. But a good and pioneering start has been made.

The progress so far is like the opening of a door through which we can glimpse exciting new things for the future.

Great benefits for telephone users and for all mankind may come from this forward step in putting the energy of the sun to practical use.

BELL TELEPHONE SYSTEM

San Diego Reservoirs OK for Recreation

On pages 217-218 in your June issue an article entitled "No Swimming or Fishing" makes some statements directed at the Reservoir Recreation program carried on by the City of San Diego's Water Department.

I would like to clarify the fact that complete water treatment, filtration, and chlorination is required, but not because of our Reservoir recreation activities. The filter plants were functioning to insure water quality and to remove bad tastes and odors long before the recreation program was started 40 years ago.

I am certain we all agree it is the prime purpose of any water works to give its customers the purest and safest water obtainable, and so it is with the San Diego Water Department. Our records prove that there has been positively no correlation between controlled recreational use and water quality.

R. C. PAYETTE
Supervising Recreation Specialist
Water Dept., San Diego, Calif.

Readers Request Ordinance

You may be interested to know that we have had a number of requests for copies of our sanitary ordinance resulting from the article in the May issue. (See "Big Containers, Better Collection," pp 114-15).

W. R. BARNES
Supervisor of Public Works
Augusta, Ga.

Sewer Inspection

Mr. Blanke's idea of photographing the interior of a sewer with his inspection tool has enormous possibilities (See "Sewer Inspection Tool," June, p. 117).

However, for visual inspections, our method is much simpler. We take a "Carpenter" light, the brightest portable light I have ever seen, and flash it through the sewer. You can see everything for a block. To locate wyes, just count the joints.

BENJAMIN C. SEAL, *City Engineer*
Kenosha, Wis.

More on Urban Renewal Progress Report

Thank you kindly for the courtesy copies of the June 1956 issue of THE AMERICAN CITY, in which you published my article, "Urban Renewal Progress Report,' (pp. 128-130), based on the speech I gave at the Silver Anniversary of the National Housing Conference. You have rendered your readers a real service by citing the substantial accomplishments of the urban renewal program in addition to your earlier analysis of barriers to more rapid progress.

J. W. FOLLIN
Urban Renewal Commissioner
Urban Renewal Administration
Washington, D. C.

Highway Authorities Defended

After reading Mr. Brokaw's article on his troubles with the New Jersey Highway Authority (See Watch Out for Highway Authorities! in the June issue, p. 110), we hope that some ask whether there isn't another side of the story.

Today, "authority" has become an ugly word. Any governmental agency bearing this name is generally judged by its position and powers rather than by its performance. We submit that the record bears closer examination than the article permits.

The New Jersey Highway Authority acknowledges that mistakes were made during the construction of the Garden State Parkway. The fact remains, however, that the 164-mile Parkway became a beautiful reality in a matter of a few years. Its acceptance and use today speak for itself. And if more of a testimonial is needed, I am sure many municipalities which suffered from hectic Parkway construction in their midst can attest to an enlightened understanding of their problems and a surge upward in their development and ratables.

May we politely point out, also,

THE AMERICAN CITY

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Elroy F. Spitzer, Engineering Editor • **Douglas S. Powell,** Associate Editor • **William T. Dulac,** Production Editor
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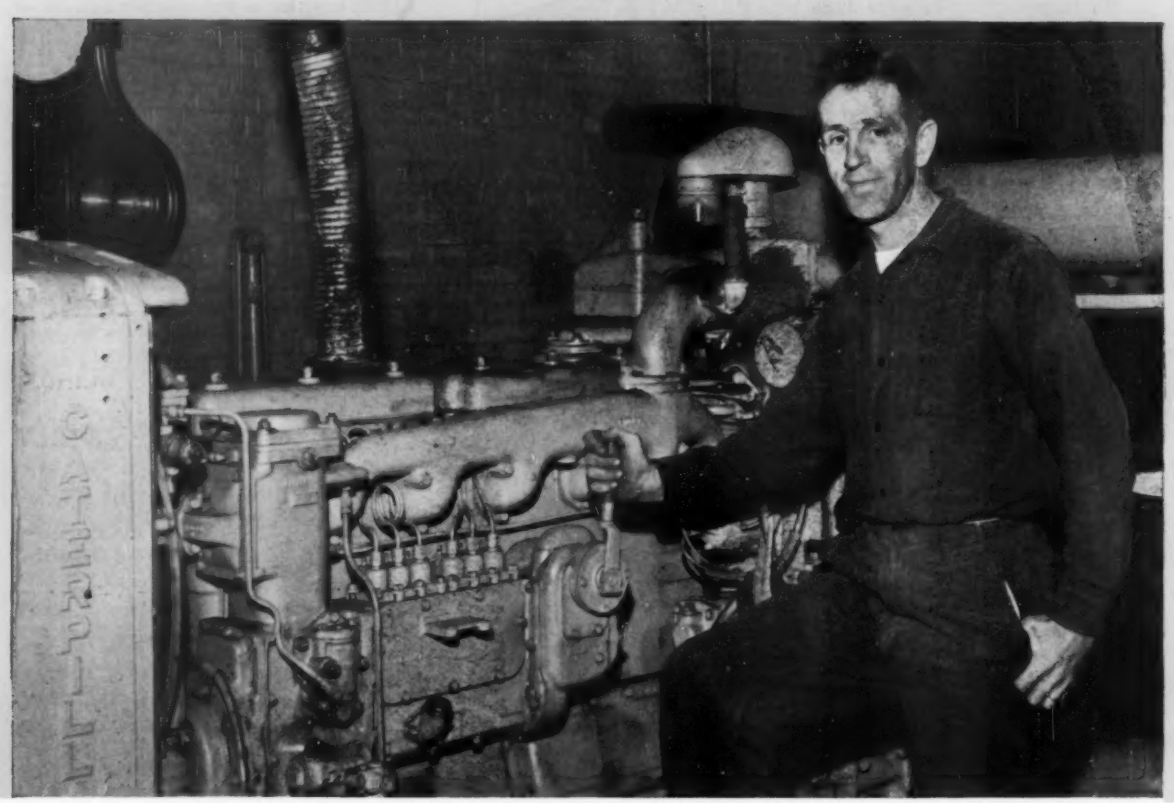
DEPENDABILITY

—FOR THE MOST IMPORTANT HOURS IN A YEAR



That's Supt. Madison Alwardt standing beside the Caterpillar D318 Engine that's used for standby power at the water pumping station in Oak Bluffs, Mass.

In six years of service, this D318 has averaged about a hundred hours a year. For the Oak Bluffs Pumping Station, these were its most important hours. Six of them, for example, were in the heart of a hurricane that crippled regular power supplies. Another time, the D318 was in action 24 hours a day for three solid weeks. Oak Bluffs' normal population is 1500; during the summer, it is 40,000. No wonder Mr. Alwardt says, "It's nice to know we have a *dependable* source of power—just in case. . . ."

Part of this dependability comes from details like these:

CAT* standby Engines and Electric Sets start *immediately*. They are extremely simple to operate. Their Caterpillar generators require no adjustments. No skill is required. In fact, they can be equipped with automatic controls to start and operate completely unattended. They go light on fuel, too, so that your reserve supply can be smaller. And Cat Engines use non-evaporating fuel that's safe and easy to store.

Your Caterpillar Dealer will gladly explain the many other reasons these engines and electric sets are so thoroughly dependable. He has a complete line of Cat Diesels ranging up to 650 HP maximum output capacity, to protect

you and your community. And they don't need an emergency to save tax dollars for you, either. They're ideal for efficient, economical power when you're making repairs to regular power sources—or on locations where utility power is high. Remember, too, your dealer has the service and the parts you can depend on to protect your investment.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

MODERN DIESEL STANDBY POWER

that sometimes difficulty stemmed from municipal indecision or differences among local officials and citizens. The Authority's obligation is to serve the welfare of the state as a whole, and it must be guided by that standard in resolving any problem.

MILTON LEVY
Director of Public Relations
Garden State Parkway
New Jersey Highway Authority
Red Bank, N. J.

PAS Had Two Parents!

In Russell E. McClure's fine article about Clarence E. Ridley's retirement in your July issue, he says the work of the International City Managers' Association research staff "was expanded into a separate organization called Public Administration Service." With all due credit to the splendid accomplishments of Dr. Ridley and the International City Managers' Association under his leadership, this is not quite the whole story.

Municipal Administration Service, operated for several years from the office of the National Municipal League under joint sponsorship of the League and several other organizations, is due part of the honor. The records indicate that Municipal Administration Service was taken over as the publications division and that the consulting and research work previously conducted in the International City Managers' Association became the nucleus of the consulting and research division of Public Administration Service.

ALFRED WILLOUGHBY
Executive Director
National Municipal League
New York, N. Y.

Two Extra Wives?

Mr. Priest's article, "The Keeper of the Minutes," which appeared on page 183 of the May 1956 issue of THE AMERICAN CITY is most interesting.

I assume that most of the facts are accurate, but I am wondering as to how an accurate City Clerk ever got the idea that King Henry VIII had eight wives. According to all of the records which I have ever read, he had only six. Have you any definite record of the names, etc., of the other two?

SAMUEL RAYMOND DOBBS
Commissioner of Assessment
Camden, N. J.

Payroll at Chicago Park District

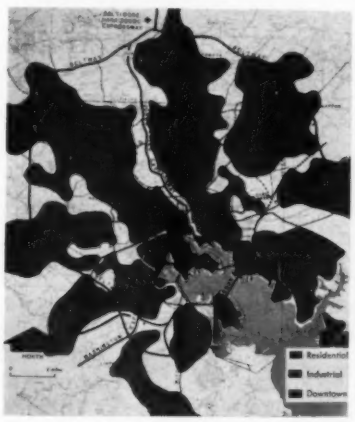
In your May issue in our article "Pointers from Accounting Control at Chicago Park District," (p. 116), under the subhead "Payroll" the 11 words in parenthesis below were omitted from the article that appeared in the copy that we sent you. Quote:

> All pay checks are mailed to employees' homes. All records are completed and checks are in the mail for receipt by the employees for the first half of each month (on the 20th and for the second half of each month) by the 5th of the month following.

The way it appears in your magazine some twenty days are needed to process a payroll, which puts the machines in a bad light they don't deserve.

HAROLD L. BAKER
Comptroller
Chicago Park District
Chicago, Ill.

Rings Around Baltimore's Center



Master Transportation Plan, approved by the Planning Commission, was developed in collaboration with the Baltimore County Planning Commission.

Our first important expressway, the Jones Falls Expressway, will be started very shortly. The lower section of it including about one and one-half miles has already been approved for construction by the mayor and city council. This is along the west side of Baltimore and extending somewhat northward from it. The ordinance for the approximately four miles to complete this expressway out to the northern city limits is in the city council at present, and we are confident that it will be approved in the near future.

The estimated time for the construction of the entire route is six to eight years. The main reason it will take this long is that the bridges on existing traffic-carrying arteries over the Jones Falls Valley will have to be reconstructed, and in order to move traffic they will have to be built one at a time.

There is no definite plan at the present to locate off-street parking areas along our expressways; however, this question is being seriously considered.

ARTHUR D. MCVOY, *Director*
Planning Commission
Department of Planning
Baltimore, Maryland

New York Regional Plan Conference Date Changed

I will appreciate it if you will bring to your readers' attention the fact that the Eleventh Regional Plan Conference will be held on Monday, October 22, rather than October 10 as originally planned. The place of the meeting will be the Hotel Roosevelt in New York City.

Our reason for the change of date is that Mayor Robert F. Wagner of New York will be the speaker at the luncheon session on the general subject of "New York City and the Metropolitan Region." As you know, Mayor Wagner had called a conference of regional officials last month at which a steering committee was appointed as the first step in establishing a permanent metropolitan-area organization. This steering committee met Wednesday, July 18, in Stamford, Conn.

Mayor Wagner has been active in city and regional planning for many years, both as chairman of the New York City Planning Commission and President of the Borough of Manhattan before becoming Mayor. He is the first Mayor of New York to indicate a real interest in metropolitan problems.

C. MCKIM NORTON
Vice President
Regional Plan Association, Inc.
New York, N. Y.

Where do we stand on

In recent years, alloys of rubber with asphalt or tar have been widely studied, discussed and tested. However, there still is some question as to the practicability of this new concept in materials of construction. We would like to answer this question as far as anyone can.

WHO WE ARE—

We are Rubarite, Incorporated—the only company organized specifically and solely to further the use of bitumen rubberizers.

WHAT WE MAKE—

We manufacture several grades of RUBARITE and RUBARITE JETLOCK.

RUBARITE is a powder of unvulcanized synthetic rubber combined with minute particles of a special carrier. It flows freely, disperses rapidly and thoroughly in the bitumen to assure uniform and maximum improvement of physical properties.

RUBARITE JETLOCK is similar in nature, but is made with a nitrile rubber for maximum resistance to the attack of gasoline, jet fuels and other petroleum products.

WHAT OUR PRODUCTS DO—

Small amounts of RUBARITE or RUBARITE JETLOCK amalgamate quickly with the bitumen with these results: Increased toughness or strength. Better adhesion. Greater ductility and flexibility. Less susceptibility to temperature changes. Improved impact resistance, elastic recovery and mix stability.

In other words, in the laboratory, our rubberizers give every indication of making ordinarily good, basic materials even more serviceable and durable. And they are proving out, in the field.

WHERE RUBBERIZERS STAND, TODAY—

In asphaltic seal coats and hot mixes for roads, the use of rubberizers is progressing steadily. Over 1,100 miles of rubberized roads are in use today. We can cite a number of instances where rubberizers have more than proved their worth. There will be more—and both uses will accelerate—with the accumulation of time and service.

In airport surfaces, the attack of jet fuels and other petroleum products more quickly proves the advantages of RUBARITE JETLOCK. As a result, a number of installations have been made and product acceptance is excellent.

In playgrounds, the safety of a rubberized surface is readily proved. The test of durability takes time, but results, to date, have been most promising.

In other uses, rubberizers are already accepted in crack and joint fillers, sealing compounds and pipeline coatings. Other applications will follow as the technique becomes better-known.

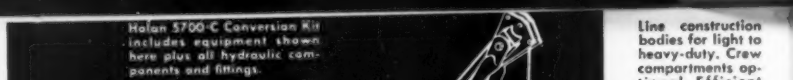
WHERE WE STAND, TODAY—

We firmly believe in our products. Just as metals must be alloyed or gasoline must be supplemented with additives to meet certain of today's needs, so we feel bitumens can be improved by rubberizing for certain applications.

If you are interested in further information on how asphalt or tar alloyed with RUBARITE or RUBARITE JETLOCK can better meet today's needs, why not write today for the free booklet, "Bitumen Rubberizers." Samples and engineering assistance are also available. Address: Rubarite, Incorporated, 1702 Philtower Building, Tulsa, Oklahoma.

RUB

Rubarite, Rubarite Jetlock—T. M.'s Rubarite Incorporated, Tulsa, Oklahoma


Holan 5700-C Conversion Kit includes equipment shown here plus all hydraulic components and fittings.
Line construction bodies for light to heavy-duty. Crew compartments op-

for hot mixes

IN ASPHALTIC CONCRETE, RUBARITE increases the stability of the mix, permits advanced rolling, improves feather-edging, sets up faster into a paving that exhibits less stripping and pot-holing, reduced brittleness and cracking from impact at low temperatures, less shoving, rutting or bleeding at high temperatures, greater skid resistance and longer life.

rubber alloys

for seal coats

IN SEAL COATS and light surface treatments, RUBARITE permits construction in much cooler weather than regular bitumens, provides mats up to twice the usual thickness, imparts unusual retention of stone, and retains the volatile oils in the bitumen for longer life—all at surprisingly low cost, often at a savings in asphalt required and cover retained.

for airport paving

IN AIRPORT SURFACING, a protective course of RUBARITE JETLOCK hot mixed with tar, solved a serious problem posed by spillage of jet fuels and their consequent softening of the asphalt. RUBARITE JETLOCK has proved outstanding in combating this attack and providing a high degree of temperature stability plus the other advantages of rubberizing.

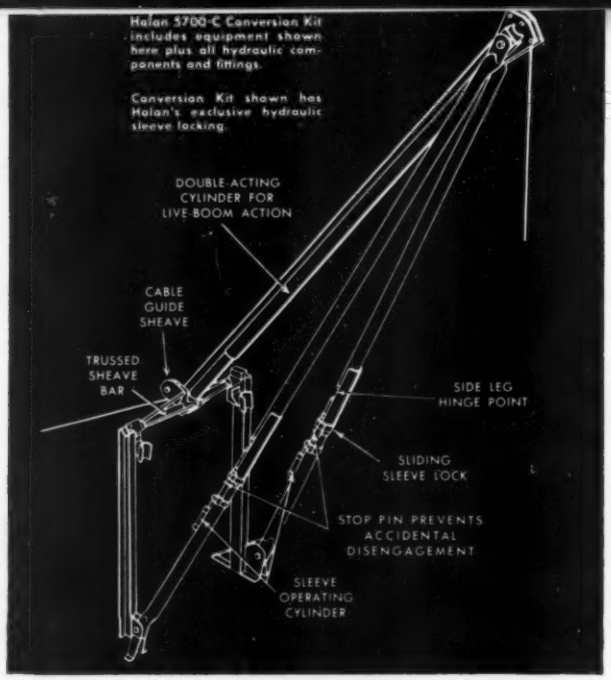
for other uses

IN OTHER USES, RUBARITE or RUBARITE JETLOCK improves toughness, strength, adhesion, flexibility and temperature susceptibility plus resistance to age, weather, chemicals and petroleum products to give better joint and crack fillers, sealing compounds and pipe coatings, may well do the same in a host of other asphalt or tar products.

RUBARITE INC.

Jointly Owned by
The Goodyear Tire & Rubber Company,
The National Lead Company and Bird and Son.

NEW HOLAN DERRICK CONVERSION KIT


Holan 5700-C Conversion Kit includes equipment shown here plus all hydraulic components and fittings.
Conversion Kit shown has Holan's exclusive hydraulic sleeve locking.
DOUBLE-ACTING CYLINDER FOR LIVE-BOOM ACTION
CABLE GUIDE SHEAVE
TRUSSED SHEAVE BAR
SIDE LEG HINGE POINT
SLIDING SLEEVE LOCK
STOP PIN PREVENTS ACCIDENTAL DISENGAGEMENT
SLEEVE OPERATING CYLINDER

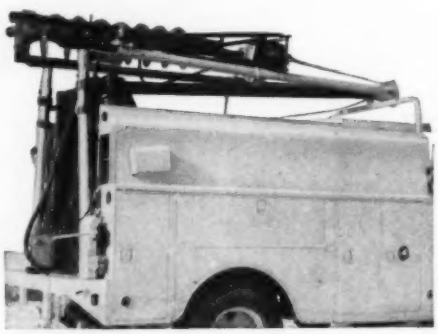
MAKES OLD DERRICKS COME TO LIFE

Now your rigid tripod-type derricks can be converted to lift poles from an infinite number of positions . . . fold over the cab for stowage . . . and rise ready for action in seconds. The new Holan Derrick Conversion Kit does the trick—even though you have a single-drum winch.

With the Holan Kit, a mechanic can convert your derricks to hydraulically-operated units right in the field. He cuts and hinges the side legs, and cuts the center leg for installation of the double-acting cylinder. All hydraulic components and equipment are in the Kit.

You can specify pin-type locking or Holan's exclusive hydraulic sleeve locking. Write for data about the Holan Series 5700-C Conversion Kit.

Here's how your converted derrick will look in action when converted to hydraulic operation by the new Holan Conversion Kit.



Converted derrick folds over into stowage position . . . comes back up in seconds. Optional cradle shown here enables you to stow diggers overhead instead of in body.

Line construction bodies for light to heavy-duty. Crew compartments optional. Efficient tool compartments and drawers.

Aerial arm for spotting workmen 37 feet above ground, 9 feet below ground level. Double-basket unit extends 45 feet. Rotates 360°.

Service bodies for chassis up to 1½ ton. Lengths, 72", 75", 84", 90" and 102".

Hydraulic Derricks designed for front or rear mounting. Capacities to 12,000 lbs.

Light-duty power operated derricks for front or rear mounting. Operating range of 146°.

Ladders to 40' with all phases completely hydraulic. Pump actuated by P.T.O. or separate engine drive with electric starter.

Mechanical Ladders expertly engineered and counterbalanced for effortless handling. Maximum heights from 24' to 32'. Swings 360°; angles to 72°.

Portable hydraulic and mechanical earth borers. Augers for 8" to 20" diameters, depth to 8'.

Wide variety of pole and reel trailers. Standard and special. Many optional features.

Hydraulic jacks, controlled from rear of truck. Rigid mounted or patented Holan self-stowing types.

Hydraulic towers with rotary, stationary, or transverse platforms. Exclusive box-girder telescoping mast.

J.H. HOLAN CORPORATION

4100 WEST 150TH STREET
CLEVELAND 11, OHIO

OTHER PLANTS:
HOLAN CORPORATION OF GEORGIA, Griffin, Ga. • J. H. HOLAN CORP., Phoenix Div., Arizona
BRANTFORD-HOLAN LIMITED, Brantford, Ontario

THE NAME THAT MEANS WORK SIMPLIFICATION

The National Highway Program — A Challenge to Cities

ROUGHLY $33½ *billion* is going to be spent in the next 13 years on the nation's highways. Already plans are well under way committing portions of the funds.

Important to municipalities is the fact that about $16 billion will be spent on urban arteries that will reach into the hearts of the cities themselves. Never has the need for close attention to urban planning been more important

The new program recently passed by Congress and signed into law by President Eisenhower, will make a reality of the "National System of Interstate and Defense Highways." Under its terms the nation can expect turnpike-type construction without toll expense and annoyance. Virtually, it will put to an end the practice of states going into the toll-road business — a business that is suffering increasingly from an economic malaise.

This highway system will enter cities, and pass through them The decision of how this will be done rests with the various state highway departments. To see that it is done intelligently, every urban area needs to make close contact with its respective state highway department and see that plans proceed along constructive lines.

Highway departments need this help. All of them have been trained to build rural roads and highways. The importance of fitting this planning to urban needs in these portions of the systems is paramount

In the 160 or more metropolitan areas around the country, the need is particularly important. The independent municipal units in the metropolitan areas will suffer if they do not meet and work as a group so that their problems can be discussed and solved early in the program.

In addition, the bill steps up the amout of money available for the old federal-aid primary and secondary system. Under its terms, 25% is earmarked for extensions of the federal-aid primary systems within urban areas. Actually, urban areas will get much more than this simply because they have spilled over land that was once rural and is still served by primary and secondary highways. The present legislation authorizes $825,000,000 for 1957; $850,000,000 for the next year; and $875,000,000 for the next.

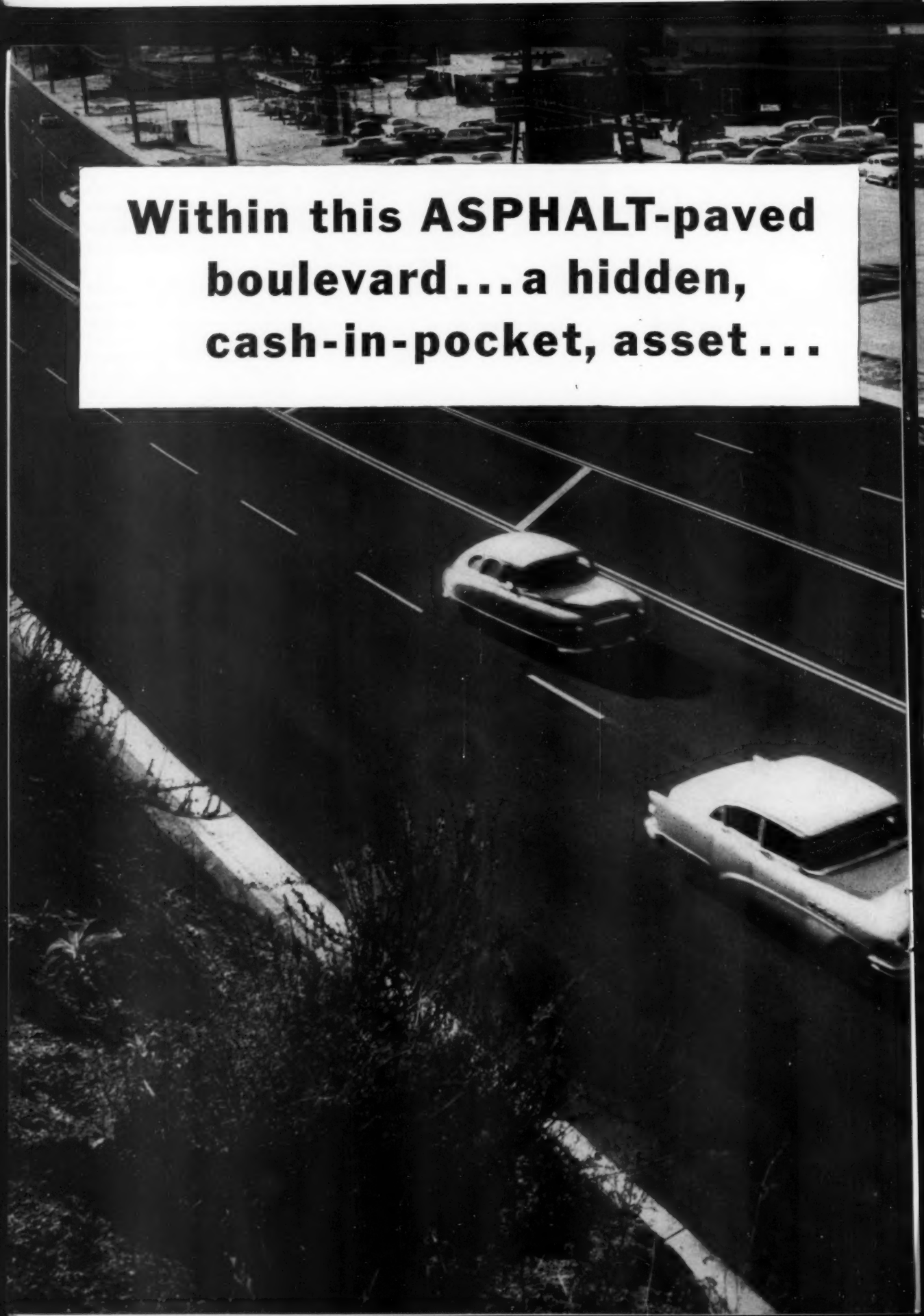
One portion of the program that will cause pain to some cities is the legislation dealing with utility relocation costs. In some states, particularly those with an enlightened attitude toward their municipalities, changes in underground utilities caused by highway construction are considered justifiable highway expenses. Others still cling to the horse-and-buggy philosophy that utilities occupy the space beneath the highway by permissive sufferance, and must make revisions at their own expense whenever new highway construction dictates.

This type of reasoning had some merit when highways were chiefly unimproved roads, and the changes could be made by a couple of men with shovels. Today, however, highways are large, intricate structures, wider than anyone would have imagined even as recently as 25 years ago, and utility changes become major expense items. Many smaller communities that have grown up alongside of a highway can easily find themselves having to rebuild their water utilities completely if a highway change takes place.

The present legislation conforms to state policies. If the state permits highway funds to be used to relocate utilities, then federal funds also can be used. This gives cities additional reasons to call on their respective state capitals and put in a plea for some such merited assistance and update this particular type of legislation to 1956 standards.

The highway program is the biggest peace-time project ever undertaken by this country. Cities, towns, villages, urban townships and counties all have a vital

(*Continued on page* 194)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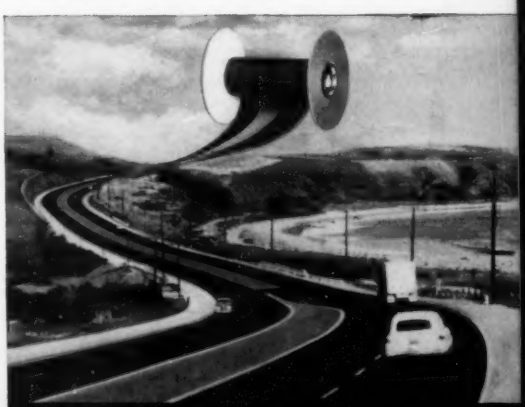
What builder says: Schroeder and Company built the Foothill Boulevard and many other roads in and around Los Angeles. Mr. H. E. Schroeder, president, has this to say about Asphalt construction: "We are called on to widen and strengthen old roads with Asphaltic concrete construction very often. It is work we like, as it is easier and less expensive than all-new construction, and we feel proud of the results. Usually, we can work in several locations during the season."

When daily traffic count rose to 16,000 on Los Angeles' Foothill Boulevard, engineers converted the original thirty-foot street to this wide modern artery. Old shoulders were removed, a good firm base constructed and a new, heavy-duty Asphalt wearing course was laid over the old pavement and the new base.



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Sewage Works Get Federal Aid

Little cities get most of the benefit in the new federal stream-pollution law

FEDERAL-AID grants again have entered the water-pollution control picture under the terms of the new Federal Water Pollution Control Act. The act provides $50,000,000 per year for ten years spread in a thin layer, principally among the small plants. Specifically the Act provides:

- a maximum grant of 30% of the estimated project cost, or $250,000, whichever is smaller, provided that the grantee agrees to pay the remainder.
- that all grants must be approved by the appropriate state or territorial water-pollution control agencies and by the Surgeon General of the Public Health Service, and must be included in a comprehensive program.
- that all projects must conform with the state or territorial water-pollution control plan, and be certified by their respective water-pollution control agencies as entitled to priority on the basis of financial as well as water-pollution control needs.
- that grantees must make provisions satisfactory to the Surgeon General of the Public Health Service, to operate and maintain the treatment works after completion.

The Act spreads the funds according to a formula that provides:

- 50% based on the population of each state from the 1950 U. S. census.
- 50% on a basis inversely proportional to the per capita income in each state or territory.

The income figures are derived from the three most recent consecutive years for which satisfactory data are available from the Department of Commerce. A tentative distribution of funds is shown in the accompanying table.

Dispersal of Federal Aid Funds For Sewage Treatment

State	Allotment	State	Allotment
Alabama	1,150,125	New Hampshire	543,150
Arizona	566,725	New Jersey	1,113,600
Arkansas	1,067,925	New Mexico	631,850
California	2,053,325	New York	2,749,675
Colorado	624,300	North Carolina	1,270,675
Connecticut	628,275	North Dakota	702,575
Delaware	350,350	Ohio	1,653,325
Dist. of Columbia	445,650	Oklahoma	865,825
Florida	910,775	Oregon	647,125
Georgia	1,137,700	Pennsylvania	2,097,650
Idaho	576,475	Rhode Island	520,500
Illinois	1,752,825	South Carolina	995,100
Indiana	1,027,400	South Dakota	660,775
Iowa	873,075	Tennessee	1,136,050
Kansas	733,550	Texas	1,716,475
Kentucky	1,067,225	Utah	591,175
Louisiana	993,975	Vermont	575,325
Maine	627,125	Virginia	1,027,450
Maryland	750,350	Washington	755,850
Massachusetts	1,137,125	West Virginia	891,525
Michigan	1,389,675	Wisconsin	971,725
Minnesota	929,450	Wyoming	440,375
Mississippi	1,180,375		
Missouri	1,059,775	Alaska	426,525
Montana	503,650	Hawaii	496,100
Nebraska	661,075	Puerto Rico	1,185,550
Nevada	325,775	Virgin Islands	830,000

Total allotment equals $50,000,000

The Act permits use of the funds to pay not only for construction, but also preliminary planning, engineering, architectural, legal, and other related costs.

The formula for the distribution of grants is aimed at providing help for the little plants rather than the large. Estimates of public health officials generally concur that the amount of stream pollution is increasing faster than the construction of new treatment works, or the rehabilitation of old treatment works.

According to Public Health Service records, the cities will have to build sewage treatment works at the rate of $533,000,000 per year for ten years to meet the nation's water-pollution abatement needs. Actual construction costs are roughly half this figure. For the past four years, they have run:

Year	Cost	Projects
1955	$251,000,000	749
1954	284,000,000	716
1953	239,000,000	615
1952	171,000,000	515

Under the federal formula, a project that cost $833,000 is the largest that can receive a grant of 30% and not exceed $250,000. In reviewing the 1955 construction data one finds over 10 times as many projects in the smaller group than the large. Figures run as follows:

Plants	Number	Total Cost (million dollars)	Average Cost
Less than $833,000	683	120	0.176
Greater than "	66	131	1.98

If each plant in the lower bracket received a 30% grant, a total of $36,000,000 would have been awarded them. If each of the larger plants had received $250,000 they would have been awarded $16,500,000, making the total $52,500,000, or very close to the amount that Congress authorized each year.

If the grants stimulate construction as expected, then the possibility is strong that the $50,000,000 appropriation will not be enough to cover the needs. Presumably the construction should be doubled to provide enough treatment plants to meet the growing need for pollution abatement. However, under the terms of the Act the Public Health Service can reduce the amount of the grants if it wishes. The figure of 30%, or $250,000, are top limits not inflexible standards.

The grants-in-aid feature is only one part of the Act. The bill also gives the federal government greater power to enforce anti-pollution measures. Under its terms, the government can take a city or industry into court if it pollutes an interstate stream sufficiently to endanger health or welfare in downstream states. In the past, the federal government could do this only with the consent of the state where the offending city or industry is located. Under the new law the government can proceed as before with the consent of the state where pollution originates, or at the request of the downstream state.

The bill also authorizes $3,000,000 per year to be used for grants to states and interstate agencies to assist in meeting the cost of establishing and maintaining pollution control measures. These funds also will be distributed among the states on the basis of population, of financial need, and extent of water-pollution problems. Grants will vary from about $15,000 to $250,000. The Act itself does not carry on appropriations. It is enabling legislation that requires congressional appropriation to become effective.

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Our Municipal Notebook

Special Census Studies Boost Local Shares of State Tax Funds

FAST-GROWING municipalities whose shares of state tax funds are tied to outmoded 1950 census figures are boosting their local revenues by undertaking up-to-date census studies, the Census Bureau reports. California and Illinois lead all other states with the largest numbers of cities and towns asking the Bureau to help them conduct corrected enumerations. Other states from which frequent requests are now emanating include Arkansas, Alabama, New York, and South Carolina.

Rapid Growth Spells Need

The move for new population figures has been generated by the need in rapidly growing communities to increase their allotment of state tax funds where such funds are distributed in proportion to official census figures. Since the last federal census in 1950, many communities have doubled, and in some cases tripled, their populations, thus placing them at a disadvantage in distributions based on old population data. Although most states accept the special census studies in portioning out tax revenues to localities, a few do not. Among the latter are Virginia and Oregon.

Under existing federal laws any municipality or county may request a special enumeration to be taken by a local staff working under the direction of a Special Census Supervisor provided by the Bureau. The community must pay for the full cost of the census, which includes a Bureau fee and payments made to local persons hired for the job. In addition, it must provide the office space and equipment needed for the project.

Rate Coverage

The Bureau fees (shown in the accompanying table) have been set at the following standard rates for communities with a population under 50,000.

These rates cover the supervisor's salary, his travel and subsistence allowances, plus the costs of preparing the maps, the tabulation of the census results, and miscellaneous supplies. The rates do not cover the local costs for hiring persons to conduct the enumeration and to assist in the supervision and clerical work of the census.

Municipalities with 50,000 persons or more, and counties, regardless of size, will pay according to actual costs incurred.

Public officials of any community can write to the Director of the Census for a cost estimate. They should furnish information on the approximate population growth since the last census. The final cost of the census will be based on actual population figures.

The special census will follow the same rules of the federal decennial census and will include data on age, sex, and race for each person. But any community may have the census cover other subjects by paying an additional cost.

Information on the new law can be obtained by writing to the Bureau of the Census for Special Census Form-1.

Standard Bureau Fees for Cities

Population	Bureau Fee
Under 500	$220
500-1,000	$330
1,000-5,000	$330 plus $9 per 100 or fraction, over 1,000
3,000-5,000	$510 plus $7 per 100 or fraction, over 3,000
5,000-10,000	$650 plus $25 per 500 or fraction, over 5,000
10,000-50,000	$900 plus $35 per 1,000 or fraction, over 10,000

1955 a Banner Year for Annexations

CITY ANNEXATIONS reached a record high in 1955, according to the 1956 Municipal Year Book. A total of 526 cities having over 5,000 persons annexed new territory last year, as compared to 410 cities in 1954 and the previous high of 434 in 1953. Altogether, the 526 cities absorbed 348 square miles, another all-time record. This was 23 more square miles than were annexed in 1954.

The largest annexations in 1955 were made by three Texas cities. El Paso, topped the list by incorporating 34.5 square miles into its borders and gaining 40,000 in population. In 1954 and 1953, El Paso had the second and fourth largest annexations in the country, making a total of 73.6 square miles annexed in three years.

Fort Worth was second on the 1955 annexation list with 21.5 square miles and Dallas, third, with 12.4 square miles. The fourth was Columbus, Ohio, with 10.2 square miles.

Besides El Paso, the cities reporting annexations bringing in more than 10,000 new population were: Tucson, Ariz.; Tulsa, Okla.; Long Beach and Santa Rosa, Calif.; Columbia, S. C.; and Kalamazoo, Mich.

More than three-fourths of the cities had annexed areas two or more times previously. San Jose, Calif., which acquired 5.75 square miles, has completed 47 separate annexations. Fresno, Calif., has completed 195 separate annexations in the last eight years to obtain less than 12 square miles.

New $500,000 Planning Study for New York City Region

THE BASIS for a new regional plan for the New York area will be started this summer when the Regional Plan Association of New York begins a three-year study of the future economy and population growth of the nation's biggest metropolitan area. The three-year project will be financed by grants totaling $480,000 and donated jointly by the Rockefeller Brothers Fund and the Ford Foundation. The actual work will be carried out in New York by a special staff organized by Harvard Uni-

versity Graduates School of Public Administration.

The study seeks to understand how population and economic growth have shaped the region's development. It will require an intensive study of such factors as the shifts in population, changes in the structure of the labor market, costs of construction, land, power, and water, and governmental costs.

The final report will include a projection over the next 25 years of the economic development and population for the region. This is intended to be used as a guide for government and industry in long-range planning of community services such as park facilities, schools, transportation, and the location of industrial plants.

The New York staff will also use the services of the Harvard University faculty. Directing the project in the city will be Raymond Vernon, recently planning and control director of Hawley & Hoops, Inc., and at various times Acting Director of the Office of Economic Defense and Trade Policy of the U. S. Department of State. The activities at Cambridge will be coordinated by Edgar M. Hoover, an authority on the economics of industrial location and on population problems, and presently associated with the Office of Population Research of Princeton University. Mr. Hoover was a staff member of the President's Council of Economic Advisors.

Industrial Land Scarce In City Areas

THE DEMAND for quality industrial space is rapidly growing while at the same time vacant land appropriate for industrial use has become increasingly scarce according to a recent nationwide survey by the Society of Industrial Realtors. The study was based on 1956 data supplied by more than 100 industrial real property experts. The findings show that good unimproved industrial sites are at a premium around many cities. At the same time 83% of the reports indicate their land values have risen in the past year.

The survey also finds the trend for one-story buildings has been accelerated and sites with services and adequate parking facilities find a ready market. The Society's predictions are that the demand for sites will continue, bringing a further rise in land values.

Federal Grants for Sewage Works— A Sugar-Coated Warning

THE ARGUMENT favoring federal assistance for the construction of sewage treatment plants by consulting engineer Sam Zack (See page 165) never came at a more appropriate time. As is so often the case, the story was in the process of preparation over the past few months. However, as Congress started drawing to a close, it enacted a small but carefully prepared system of grants, aimed especially at the sewage treatment plants costing less than $1,000,000. (See also page 15.)

A Controversial Issue

Since it reintroduces the policy of federal grants, this act is bound to stimulate more than its share of emotional controversy. Those opposed to it will scold that it is another example of "creeping socialism," another step along the path of surrender of the rights of the individual, another opening wedge into the philosophy of running to Washington instead of doing work that a city or industry rightfully should do itself.

Those favoring it will say caustically that engineers and designers don't want the grants because another agency now will look at their plans and probably find some mistake, or that many state boards of health won't want it because a federal agency will be looking at their orders and may find some that are not justified. Neither argument has any place in any constructive appraisal of the federal grant system.

Pertinent Points

Actually, these are the factors, or issues, that bear pertinently on the subject:

- **Our waterways are precious and vital to the welfare of the nation. They must not be damaged.**
- **Protection of these waterways is basically a local, state or, at best, a regional responsibility. This should remain unchanged.**
- **Today these waterways are being polluted faster than sewage treatment works are being built to correct this condition. Public Health Service estimates, often presented and never challenged, show that the present rate of construction will have to be doubled for the next ten years to correct this situation.**
- **Since state and regional agencies have been unable to correct this problem; since many cities, particularly the small ones, find the financial load extremely difficult; since a vital natural resource appears endangered federal action seems mandatory.**

The most direct action would be a simple law giving authority to enforce needed remedial action to the federal government rather than to the states. This blunt negation of states' rights certainly is not favored either by local, state, or federal agencies.

Responsibility Must Be Assumed

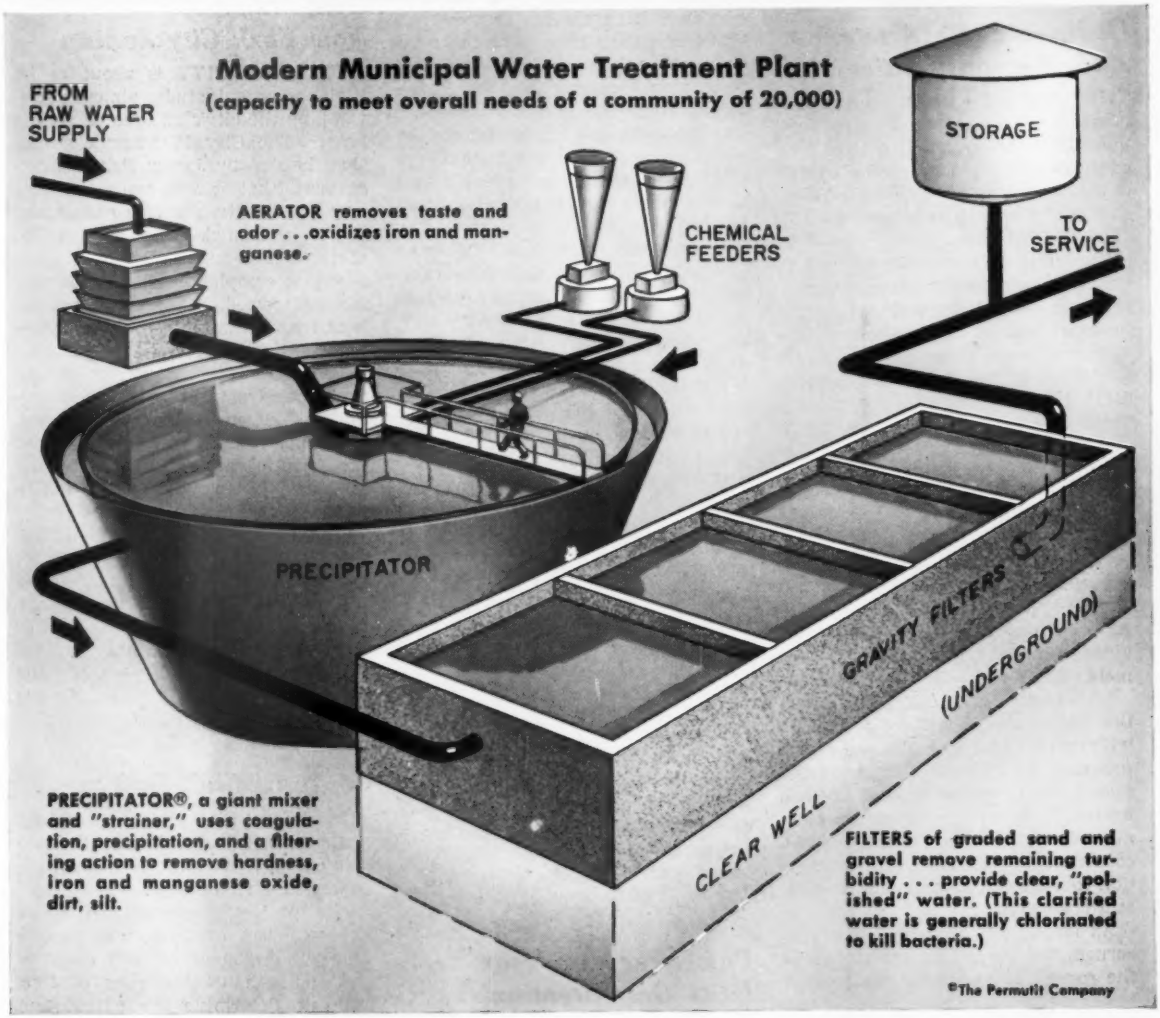
This act of Congress uses the carrot instead of the club. It keeps responsibility in the hands of state and regional authorities, except in cases of flagrant refusal to accept this responsibility. In addition, the bill provides funds so that state agencies can embark on more substantial stream pollution abatement programs. Many states keep these programs on a starvation diet. In 14 states, the amount of money spent for water-pollution control is less than $20,000 per year. In nine states it is less than $10,000. In only eight, it is over $100,000.

The principal advantages of the act are these:

- **it serves notice to state, and regional enforcement agencies that the nation at large recognizes that its water resources are being damaged.**
- **that the nation is proposing this small stimulus in order to help matters along.**
- **that state and regional enforcement agencies had better hustle along with their corrective enforcement measures in order to protect adequately these great natural resources; if they do not, the federal government may decide to do this little job of enforcement itself.**

This federal grant system has one purpose: to build more sewage works. It is not a work-relief program; it is an act aimed at meeting a national need, without violating state and local rights. On this basis, it merits strong municipal support.

WATER: Averaging 5¢ a ton "delivered," city water is a bargain . . . but costs may go up as supplies dwindle.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City Water Needs: Up 50% by 1975

U. S. municipal water utilities distribute more "tonnage" in one day (16½ billion gal. or 68 million tons) than the nation's steel industry puts out in 6 months! But . . . demands by small industry, business and homes are growing sharply with a total rise of 65% since 1940. About 40% of leading U. S. cities are already in tight supply, limiting their industrial growth.

• **Farsighted planning** now will save money for all water users . . . and prevent serious shortages that could imperil health and fire protection. Here are 3 ways capacity of existing water works can be increased: 1—Use the most plentiful water supply—river, lake or well—even though it may be lower grade. Today's water conditioning equipment can bring it to top standards. 2—Convert an existing settling basin to a modern *Precipitator* . . . to increase its capacity 2 to 4 times and save on construction costs. 3—Replace natural zeolites in water softeners with a highly efficient ion exchange resin such as *"Permutit Q"* . . . to increase output up to 200%.

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The Capped Sewer Ordinance, Its Assets And Responsibilities

THE "capped sewer ordinance" passed by Marple Township, Pa., and upheld by the courts, is a legal two-edged sword. Insofar as the editors of this magazine know, Marple Township is the first to have ever used it. (See p. 132.)

The ordinance permits a municipality to complete its sewerage program in an orderly way, within its financial budget, and without expensive emergency programs that strain the limit of indebtedness. At the same time, it commits the municipality to such a program, and to one that will be completed in a reasonable time, probably within five years.

The broader aspects of the ordinance, however, undoubtedly are of even greater importance. Its strong support by the courts means that it contributes to the growing body of American municipal law that provides municipalities with more complete control over such developments.

In essence, the ordinance states that the Township will not be rushed, willy-nilly, into a costly sewerage program just because a developer sees some inexpensive land. When he builds homes on them, he must not only supply septic tanks, but also construct sewers ready for connection to a trunk line that will be built at a later date.

As far as the householder is concerned, his costs will remain about the same. He pays for the reserve sewer in the purchase price of his house, instead of assessments later. The sewer, installed while the homes are being built, ought to cost less, enough so to counterbalance the added cost of the septic tanks that the householder will have to use. Moreover, he won't have to face the inconcenience of torn-up streets that sewers constructed by more ordinary means would entail.

As far as the builder is concerned, he dislikes it because it adds a little to the original selling price. The difference will not be great, but in this period of competitive sales, even a small increment is reflected in marketability.

As far as the Township is concerned, it now can schedule the sewerage program in orderly fashion—but it cannot delay work indefinitely. Septic tanks often start running into difficulty after about five years of service. In areas such as Marple Township, they may have to be rebuilt rather than simply pumped out. This would mean that the homeowner would face a construction bill of some $400, and his scathingly eloquent expressions of indignation over this extra expense are not pleasant to anticipate. Newspapers also would quickly rise to his support. Any cub reporter could write a story headed, "The Sewer the Town Forgot" that would be whisked across the nation on every leased wire service. Unfortunately, the public always notices stories like this.

Furthermore, the Township cannot expect that this inactive reserve sewer will remain in brand-new condition. It will fill with water; roots will find their way into it. When it has to be used, the Township can expect to have a businesslike job of cleaning on its hands.

However, the ordinance is a forward step for every municipality. It gives each one another tool with which to control residential developments and take them out of the mushroom-type, quick-to-deteriorate category. It gives the municipality an opportunity to organize its program and finance trunk sewer constructions in an orderly manner. And at the same time, it definitely does commit the municipality to such a program that will have to be completed within a short time.

Passenger Conveyor Belts Get Attention

THE IDEA of using conveyor belts in mass transportation is gaining interest in the country. A report by the *Downtown Idea Exchange* shows that many big cities now have proposals for the use of conveyor belts to help solve their transit problems. In *Cleveland,* there is a plan for car-carrying belts running under main-stem Euclid Avenue sidewalks. *New York City* experts still think a proposed conveyor belt shuttle from Grand Central to Times Square is an important and needed link. *Cincinnati* has been thinking of installing conveyor belts to connect downtown with parking lots located away from the city core. And *Baltimore* is pondering a scheme which calls for the installation of surface or subsurface belts to link downtown with its outlying hilly areas.

New Study of New York City Zoning

NEW YORK CITY is about to initiate a second study aimed at revamping the city's antiquated zoning laws. The City Planning Commission, headed by James Felt, has announced that it will undertake the survey with the aid of a consultant, yet to be named. It is expected to cost $150,000 and will take at least a year to complete. The plan is now moving toward an approval from the Board of Estimate which will provide the funds for the project.

The city's present zoning regulations date from 1916. The new regulations, when they are completed, according to Mr. Felt, would be in the form of an amendment to the 1916 laws but would actually constitute a replacement.

In 1951 the firm of Harrison, Ballard & Allen, under contract from the Commission, issued a plan for revising New York's zoning regulations. But the "Plan for Rezoning" was never adopted on the grounds that it was too complicated and would also arouse the opposition of too many real estate owners.

Study of Civil Defense

THE Federal Civil Defense Administration has selected Michigan State University to conduct a nationwide survey of civil defense

The project, underwritten by a $33,944 FCDA contract, will include surveys of 250 cities, 900 counties and comprehensive studies of four cities to determine the extent and methods of CD preparedness.

Professor G. A. Schubert, Jr., was designated director of the project. He will be assisted by Drs. J. G. LaPalombara, Frank A. Pinner, and R. V. Presthus. All have been conducting civil defense studies since March of this year and are members of the political science department staff. The team has drawn up questionnaires and has sent them to officials in 250 cities officially designated "target areas," and to 900 sample counties.

The cities slated for comprehensive CD study include Portland, Ore., Kansas City, Mo., and Kansas City, Kans. Earlier in the year investigators completed a preliminary pilot study of Milwaukee, Wis. The group plans to wind up the study early in the fall.

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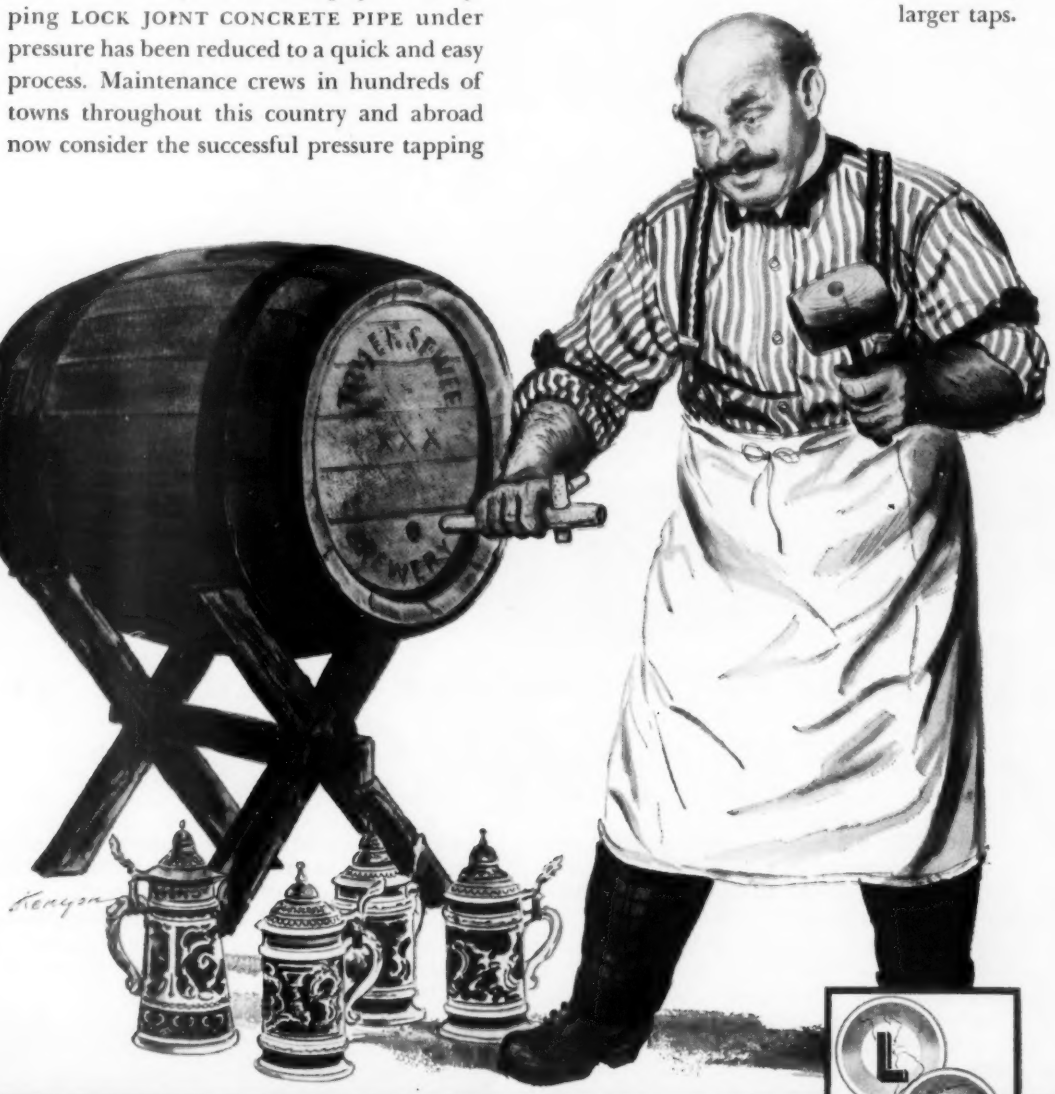

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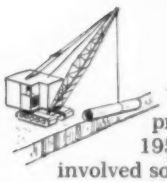
Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

Mare Island
Naval Shipyard is located at Vallejo, Calif.

WATER SUPPLY PROBLEM SOLVED AT...

Vallejo, California



Vallejo, California's severe water supply problem was solved by the installation in 1952 of the Cache Slough Pipeline which involved some 30 miles of pressure conduit.

American Pipe and Construction Co. supplied pretensioned reinforced concrete cylinder pipe from a manufacturing plant at Hayward, California for the pumping line which brings raw water from Cache Slough to the Fleming Hill Treatment plant. Kaiser Engineers did the planning which developed Cache Slough as a new water source and the installation of the pipeline changed Vallejo from a buyer to a seller of water. Glenn Harris was Vallejo's project engineer on the work and is now city engineer for the City of Vallejo.

Vallejo's officials were pleased with the cooperation, service and carefully detailed layout drawings supplied by American's Hayward plant for the Cache Slough project and in 1954 contracted for another 5 miles of 24" American Concrete Cylinder Pipe for the Trans-Vallejo pipeline.

Take advantage of American's 49 years of experience and record of supplying quality products and additional services. On your next project call, or write American for full information.

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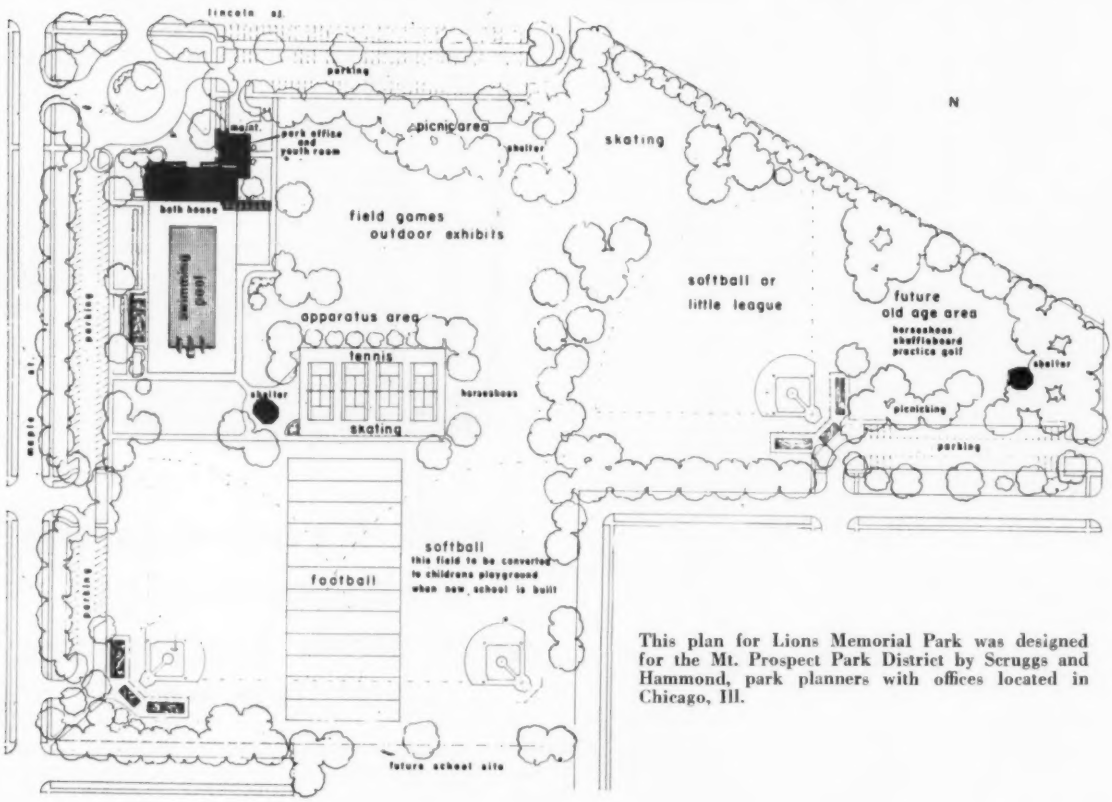
Parks & Playgrounds

Edited by JOSEPH PRENDERGAST, Executive Director, National Recreation Association



This plan for Lions Memorial Park was designed for the Mt. Prospect Park District by Scruggs and Hammond, park planners with offices located in Chicago, Ill.

Suburban Park Program Scores Hit With Residents

TWENTY-THREE acres for fun and relaxation, was the slogan that helped put the Lions Memorial Park bond issue over in a Mt. Prospect (Ill.) Park District vote last December. This month the 14,000 residents of the District are reaping the benefits of the successful vote with the completion of the swimming pool and bathhouse parts of their $450,000 park improvement program.

Expansion Program and Costs

Principal element in the program is the expansion and development of Lions Memorial Park, which, when completed, will form the key park facility in the Mt. Prospect Park district. Located in the most heavily developed section of this Chicago suburb, the park with its swimming pool, floodable tennis courts, and little league and other athletic fields has been designed to be the recreational focal point of Mt. Prospect. Over $400,000 is being spent on the area to assure that this will be true.

A breakdown of costs for the various elements being developed in Lions Park includes: $250,000 for the swimming pool, bathhouse, and park office building; $34,300 for off-street parking and approach roads; $44,320 for land acquisition; $20,450 for grading, planting and seeding the park; $19,520 for planning and engineering fee; $8,500 for general lighting; and $7,500 for tennis courts convertible for ice skating.

Five neighborhood play areas will be developed on existing park sites with the remainder of the $450,000 bond issue. These supplementary facilities are designed to distribute developed play areas closer to the homes of the younger children in the Mt. Prospect district.

Recreational Program

With the park expansion well under way, Mt. Prospect has also embarked on a full-scale recreational program. On June 1, the Park Board hired Michael Skuban as its first Director of Parks and Recreation. Since his early summer start, Mr. Skuban has developed a play program that has an enrollment of 700 Mt. Prospect children. With the completion of the new Lions Park swimming pool it is expected that the program will experience an even higher boom.

Alabama
Anniston

Arizona
Douglas
Globe

Arkansas
Little Rock

California
Albany
Antioch
Bakersfield
Burbank
Burlingame
Castro Valley
Chula Vista
Corning
Coronado
Daly City
El Centro
Emeryville
Eureka
Fresno
Lafayette
Los Angeles
Los Angeles County
Los Gatos
Martinez
Menlo Park
Merced
Monterey
Mojave
Napa
Oroville
Palo Alto
Pittsburg
San Bernardino
San Francisco
San Lorenzo
Santa Monica
Santa Ana
South San Francisco
Susanville
Turlock
Vernon
Walnut Creek

Colorado
Colorado Springs
Denver
Pueblo

Connecticut
Greenwich
Hamden
Manchester
Milford
North Haven
Pawcatuck
Shelton
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Florida
Fort Myers
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Georgia
Atlanta
Marietta

Illinois
Evanston

Indiana
Gary
Goshen
Laporte
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Morgan City
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Plaquemine
Thibodaux
Ville Platte
Westwego

Maine
Camden
Eastport
Freeport
Richmond
Sanford
South Portland
Westbrook

Maryland
Baltimore
Baltimore County
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Mansfield
Marblehead
Marion
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Westfield
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Clinton
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Eatontown
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Millburn
Millville
North Haledon
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Ridgeway Park
Summit
Teaneck
Towoco
West Paterson
West Orange
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New York
Arlington Fire Dist.
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Buffalo
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Cortland
Deer Park
Elmont
Garden City Park
Groton
Hicksville
Levittown
Mechanicsville
New York Mills
Norwood
Pleasantville
Seneca Falls

North Carolina
Albermarle
High Point
Laurinburg
Morehead City
Mooresville
Mount Olive
New Bern
Statesville
Wallace
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North Dakota
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Ohio
Akron
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Cincinnati
Cleveland
Coshocton
Dayton
East Cleveland
Lakewood
Massillon
New Boston
Norwood
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Lewisburg
Lewistown
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240 Progressive Communities
give their taxpayers a helping hand

In recent years these 240 cities and towns have cast their votes for Municipally owned and controlled fire alarm systems. They have installed brand new coded telegraph systems or made substantial replacement of existing ones. In addition, 1800 other cities and towns are safely protected by coded systems with similar features.

The Fire Chief who recommends this system gives his community — and the taxpayers — a two-way saving . . .

- Loss of life and property damage are decreased because the Gamewell system gives *fast, positive* alarms.
- Reduction of insurance rates by upgrading Fire Underwriters' classification saves substantial sums for property owners.

You can bring these same advantages to your community. For the full story on safe, sure alarms with a Municipal Fire Alarm System, ask us about a free survey. And for new ideas on how to present this story to other people in your community, write for the free booklet: "Conversation or Organization".

Remember — a Gamewell System is FIRST when Seconds Count!

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THE BOX IS POSITIVE

Reduces Human Error

THE GAMEWELL COMPANY
NEWTON UPPER FALLS, MASS.

Public Safety

Getting People Out of Damaged Aircraft

Escape Principles

CRASH fire-fighting is a highly specialized job, at which few of us have the opportunity to become expert, but there are some things about evacuating an aircraft in an emergency which we all should know. Knowing what to do and how to do it may be the means of saving lives.

When a certain DC-4 crashed on take-off, it came to rest in a swamp area with only the tail section on dry land. Firemen stood by helpless as it burned. An airline man showed them how they could get into the aircraft through a 2-foot-square lavatory service door near the tail. When a gasoline truck and a trolley car in Chicago collided, a 14-year-old girl remembered that there was an emergency door on the trolley. In each case someone who knew what to do was able to save lives.

If you have an emergency at your airport, a knowledge of general principles will help you in making wise decisions.

If the emergency is a fire while the aircraft is at the ramp, place all passenger and cargo stands at the doors and wings of the aircraft.

On field emergencies, in place of stands use a car or truck as a platform from aircraft to ground. Most aircraft have slides to assist in evacuation. You can help by holding the slide or by assisting passengers as they come out of the slide, off the wing and out of emergency window hatches.

In case of a belly landing, use the regular entrance doors which on transport aircraft are not locked. If access to regular doors is blocked the emergency window hatches are your next best bet. The DC-7, for instance, has a door-size emergency hatch in the rear lounge area. It is the next to last window on the starboard side.

Charts showing ground emergency features of our aircraft are published by the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass. Ask for Aviation Charts #53-1 and 53-2. They are 15 cents each. The NFPA has an extensive Aviation Fire Safety Program. A description of this program will be sent on request. Where we have aircraft on the ground long enough, and operational requirements permit, we are happy to arrange to have fire crews inspect them at first hand and become familiar with the location and use of emergency access facilities.

JOHN A. O'DONNELL
Staff Manager-Industrial Safety
American Airlines, Inc.

EDITOR'S NOTE: This article represents extracts from a speech delivered by Mr. O'Donnell at the Eighth Annual New York State Airport Development and Operations Conference.

Emergency Escape Ladder

ON this page Mr. O'Donnell mentions various methods of evacuating passengers under emergency conditions by using ramps, trucks or other vehicles which would be available. May I add to Mr. O'Donnell's remarks information on the existence of an emergency evacuation ladder that has been developed by the Port of New York Authority as an added unit to our existing emergency fire-fighting and rescue equipment.

This ladder, which for practical purposes is a conventional set of steps constructed of light metal weighing 55 pounds, can be handled by one man and can be used in the evacuating of passengers under emergency conditions from any aircraft engaged in operation at our airports. From various tests during the designing stage, it is known that passengers could be evacuated at least three times faster on this newly developed ladder than on the conventional 12-foot straight ladder, which people would hesitate to use at a critical time.

The cost of producing the newly designed ladder is approximately $550, and anyone interested in obtaining additional information with reference to specifications and photographs, may obtain same on request.

We in the Port of New York Authority, in the development of extensive emergency fire-fighting and rescue procedures, believe this ladder unit is the optimum in the speedy evacation of passengers from aircraft under emergency conditions.

VINCENT A. CARSON
Airport Manager
N. Y. International Airport
Idlewild, Jamaica 30, N. Y.

For Latest Facts

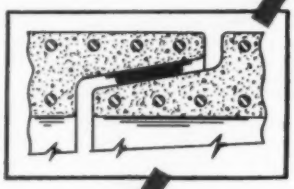
MR. O'DONNEL has sent me a copy of his letter to you, dated April 20, relative to ground emergency features of American Airlines, Inc. aircraft.

Our Association has just recently issued a set of charts on the "Principles of Rescue and Fire Fighting" and a pamphlet on our Aviation Fire Safety Program. These charts and pamphlets are available to municipal officials requesting them.

GEORGE H. TRYON, *Committee Secretary*
Aviation and Airport Fire Protection
National Fire Protection Association
60 Batterymarch St., Boston, Mass.

Specifies **LEAK-PROOF NON-DETERIORATING**

TYLOX RUBBER PIPE JOINTS



TYPE "A" GASKET under full compression

PROJECT — Richfield-Edina Trunk Sewers.

PIPE — 54" diameter reinforced concrete. Furnished by Twin City Concrete Pipe Co., Minneapolis, Minn.

ENGINEERS — For City of Minneapolis: Hugo G. Erickson, City Engineer. W. A. Ostrem, City Sewer Engineer.

CONTRACTOR — City of Minneapolis Engineering Department.

THE ONLY PERMANENTLY TIGHT LINES ARE LAID WITH TYLOX RUBBER GASKETS

TYLOX

★ **PREVENTS INFILTRATION**

★ **DEFEATS CORROSION**

★ **REDUCES COST**

OF NEW TRUNK SEWERS

Minneapolis city engineers and officials made sure taxpayers would get the most for their waste disposal dollars now, and in the future, when they designed the Richfield-Edina trunk sewer. One instance of wise planning was their choice of gaskets for coupling the large concrete sewer pipe. By specifying TYLOX Rubber Joints, they put the project **ahead** in three important ways.

MORE PIPE LAID PER DAY — Tylox eliminates "wet trench" delays . . . permits **immediate** backfilling . . . reduces job costs by cutting down man hours.

NO JOINT FAILURES — **Flexible** TYLOX compensates for angularities in the line . . . soil stresses or surface loads won't break the compression-tight, infiltration-proof seal.

NO CORROSION — TYLOX is virtually ageless. Sewage and industrial waste acids and alkalies can't harm it. Under ground and under compression, it outlasts the pipe itself.

Specify TYLOX, and make sure of fast-working, leak-proof, corrosion-proof joints on all **your** sewerage, drainage and non-pressure water lines. Write for more details and illustrated case histories today.

1913

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Snow Removal

Nighttime Is the Right Time For Removing Snow

The Barber Greene snow loader is clearing away windrowed snow from Fort Dodge street at night when business activities in this midwestern municipality have quieted.

NIGHTTIME is generally snow-removal time in Fort Dodge, Iowa. The city's Barber Greene Model 544 snow loader can place windrowed snow into awaiting trucks at a rate exceeding 10 cubic yards per minute. In summer the city switches the loading buckets to a size better designed for handling sand, gravel, and other aggregates.

Loaders such as this have been able to pick up windrowed snow at the rate of well over 20 cubic feet per minute, based on results of time studies in other cities. One such investigation reported that the loader was able to do work equivalent to 500 men with shovels.

Snow removal in Fort Dodge is part of the general responsibilities of John E. Wright, city engineer.

Alley Snow Removal Needs Special Handling

ALLEY snow removal in Rapid City, S. D. can be a real problem, mainly because the alley snow generally turns to ice. Snow on the roof tops melts and runs to the alley through the roof drains and downspouts where it collects and freezes.

H. S. Thorgrimsen, city manager, reports that Rapid City has found two ways to remove this ice from alleys. In the downtown area, storm-sewer catch basins at the ends of each alley play an important role. If the weather is not too cold, snow-removal crews wash the alleys with fire hoses, thus melting the ice and causing it to run down the sewer as water. However, if the weather remains cold and the alleys become too hazardous, Caterpillar No. 12 graders scarify the ice loose and blade it into windrows. A Hough Payloader then can pick it up and load it into a truck.

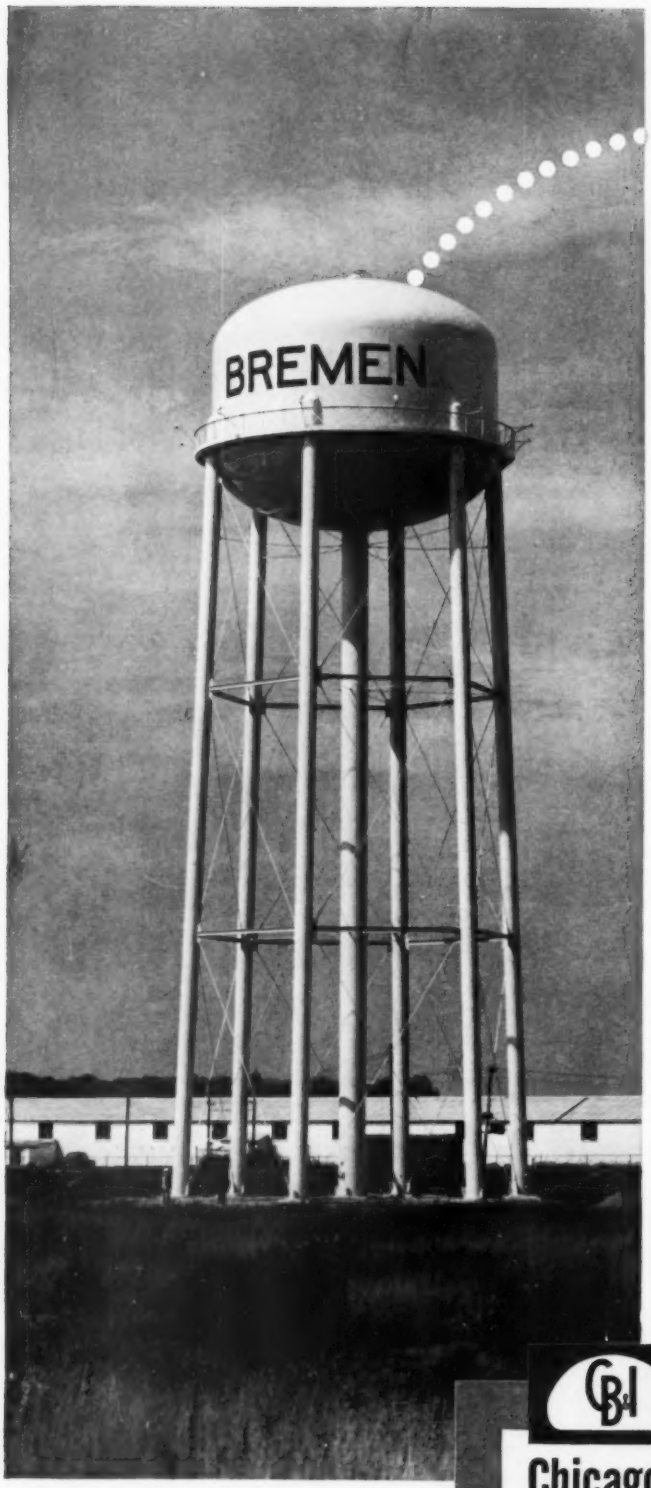
Rolls Away the Snow

ELLENBURG, Wash., has one of the most unusual uses for a pneumatic roller of any city in the nation. The roller has the distinctive assignment of serving as a snow melter.

The city has a population of 9,000, and 23 miles of streets. Of these, street-maintenance men clear the snow completely from two miles in the downtown area and plow open the balance. The city can anticipate 30 inches of snow annually, and two storms heavy enough to justify plowing. A Caterpillar motor grader does the plowing and a Michigan loader picks up the snow from the streets that require complete clearing.

On warm days, however, City Manager James Bailey instructs the grader operator to hook the pneumatic roller behind the grader. The operator then knocks the windrow down with the grader, and packs the snow with the roller, thus helping to melt it and eliminating the expense of picking up the snow and hauling it away.

Last winter, Ellenburg experienced an annual snowfall of 81¼ inches, or almost three times the amount normally expected.



300,000 gallons of Improved Municipal Water Service

● Lagging distribution pressures during peak load periods plague many communities, especially in the summertime. This problem can be solved by a modern Horton® elevated tank, such as the 300,000-gal. tank at left, built for Bremen, Indiana. A Horton elevated tank stores a reserve of water that flows by dependable gravity pressure to meet peak load periods and smooth out pressure variations throughout the distribution system . . . resulting in better, more reliable water service to consumers.

Horton elevated tanks are built in sizes to 3,000,000 gallons. Write our nearest office for further information on how a Horton elevated tank can solve *your* distribution pressure problems.

Above: 300,000-gal. Horton ellipsoidal bottom elevated tank erected at Bremen, Indiana. Plates for the tank were pickled and painted, using the Horton Pickling Process, before shipment from CB&I's plant.

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"Too Cheap" Water Supply Cripples a City

WATERWORKS officials must stop being proud of "cheap water", warned John H. Murdoch, Jr. at the recent annual meeting of the American Water Works Association. They must recognize that today water actually is too cheap for adequate service. Waterworks systems are now failing to offer the public the service they desire.

Any good waterworks manager, he stated, can show that he processes and delivers water under pressure directly into the homes and businesses in large or small quantities as the customer wishes, at a price less than the cost of cigarettes. Officials claim that they deliver water as needed, but the claim is not well founded. Water is delivered when available at the source, and when the pumps and distribution systems are not overloaded. When the customers want it most, they often cannot get it. The reason is that the system is too poor to make adequate provision for these needs.

Today's water systems have bottlenecks in the treatment plants and pumping stations; they have inadequate provisions for standby emergency facilities. Distribution systems need to be strengthened. Transmission mains need expanding. They need more engineers, bacteriologists, chemists, and trained managers, but cannot get them because they cannot meet the going pay rates established by industry.

The waterworks official must remember that the public now considers his service essential and wants that service improved, strengthened, and extended. He must show leadership in demonstrating that this can and will be provided through a rate schedule based on realistic costs.

Mr. Murdoch is general counsel for the American Water Works Service Company, Inc., Philadelphia, Pa.

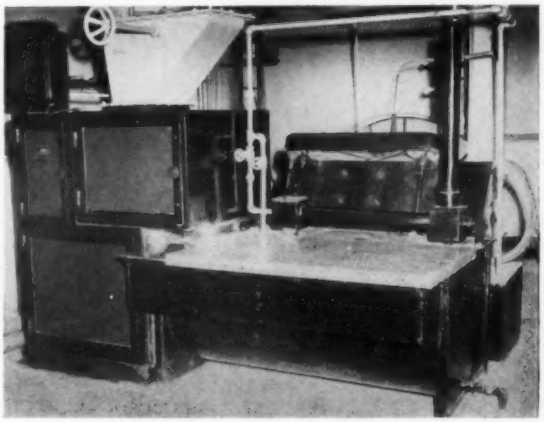
Rebuilt Equipment Saves Several Thousand Dollars

IN City Manager A. W. Noland's books, $5,000 saved is $5,000 earned. The city's metal-working shop produced this extra $5,000 dividend last year by resourceful work for the water department. Pittsburg, Kans. (population 21,000), operates its power and water utilities along with the street, park, and fire departments. The metal-working shop does work for all of them.

Two lime-feeding machines in the water-works filter plant were in need of replacement, so the city council, at Mr. Noland's suggestion, placed $5,000 in the budget both in 1954 and 1955. Each year, however, other conditions arose to prevent the purchase of replacement machines. This year, Oscar R. Green, superintendent of the Water and Steam Department called upon the Maintenance Department to see what could be done.

Clyde Umphenour, maintenance engineer, checked over the equipment and decided that it could be rebuilt using scrap material obtained from an old steam boiler which recently had been taken out of service.

Mr. Umphenour, with the assistance of George Oberley, city welder, proceeded with the project, and within one week they came up with a lime-feeding machine that was good as new. Total cash expenditure amounted to $76, covering the cost of motor parts,



One of two lime-feeding machines rebuilt by the maintenance department.

welding rod, paint and miscellaneous items. In another week the other lime-feeding machine was rebuilt and put into service.

The machines have been in service over five months and are working perfectly. Total cash outlay amounted to $153.

Automatic Stations Better Than Manual

GIVEN the choice, Marvin Owens would rather have pumping stations controlled automatically than manually. Mr. Owens, who is senior mechanical engineer at the Los Angeles Department of Water and Power, expressed this view at the recent AWWA Conference held at St. Louis, Mo.

Los Angeles' experience over the past 10 years with the automatic pumping plant has confirmed claims for great reliability. The automatic selection system for these plants has been standardized so that most installations today are basically identical in design. This permits great savings in spare parts and allows maintenance men to become thoroughly familiar with the circuit, a definite advantage in the rare event that a breakdown should take place. Another method used to simplify maintenance is the use of plug-in relays throughout. In the event that one relay fails, only a few seconds are needed to pull it out and plug in a spare unit, putting the circuit back in operation.

Automatic plants perform better than those that are manually operated, principally because of the ability of the automatic control systems to maintain constant watch over the system and within a few minutes to take the necessary corrective steps. Economically, the automatic plants show great savings.

Left:
This Rosco flusher always precedes the sweepers in order to first push all street dirt into the gutters.

Right:
The little sweeper proves its worth in areas troublesome to the big units — in a narrow alley at the right, and alongside a fence in the photo below.

Midget Sweeper Gets Workout

A MIDGET-SIZED street sweeper is being given its opportunity to supplement the work of two large units in Medford, Ore. The sweeper is a Tennant, and has been assigned to clean areas not easily reached by the larger machines. It is generally operated by one of the men assigned to the big sweepers.

Medford is a city of 20,000 persons. It has 40 miles of streets with curbs and 12 miles without, and 40 miles of gravel streets.

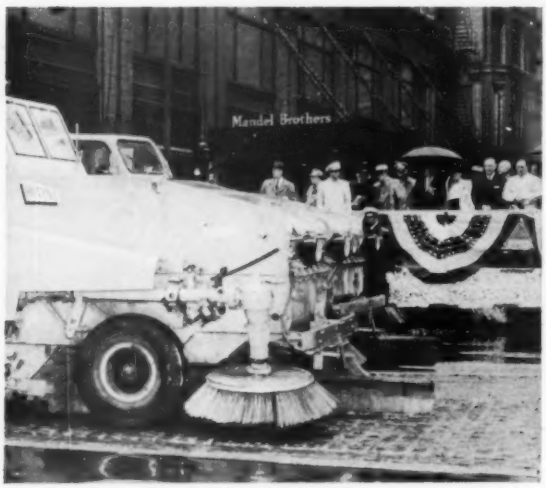
The city has adopted the policy of prohibiting parking on one side of the street on alternate days in the central business district from 3:00 a.m. to 6:00 a.m. to keep the gutters open for the sweepers. Before operating the sweeper, a 1,600-gallon Rosco flusher goes down the street to push debris into the gutter.

The sweepers cover the main business district daily from 4:00 a.m. to 8:00 a.m. and the residential streets once a week from 8:00 a.m. to 12:00 a.m. Some residential streets in less densely populated areas are swept only once every two weeks. The sweepers use

Palmyra and hickory fiber for the rear brooms; city crews fill their own brooms in city shops. Each rear broom on the big machine is good for 225 miles of service before refilling. The wire gutter brooms will need refilling after 425 miles.

VERNON THORPE, *Director of Public Works*
Medford, Ore.

Windy City Racks Up Big Sweeper Order



New sweepers in review before Chicago's Mayor Richard J. Laley during a rainy clean-up day parade.

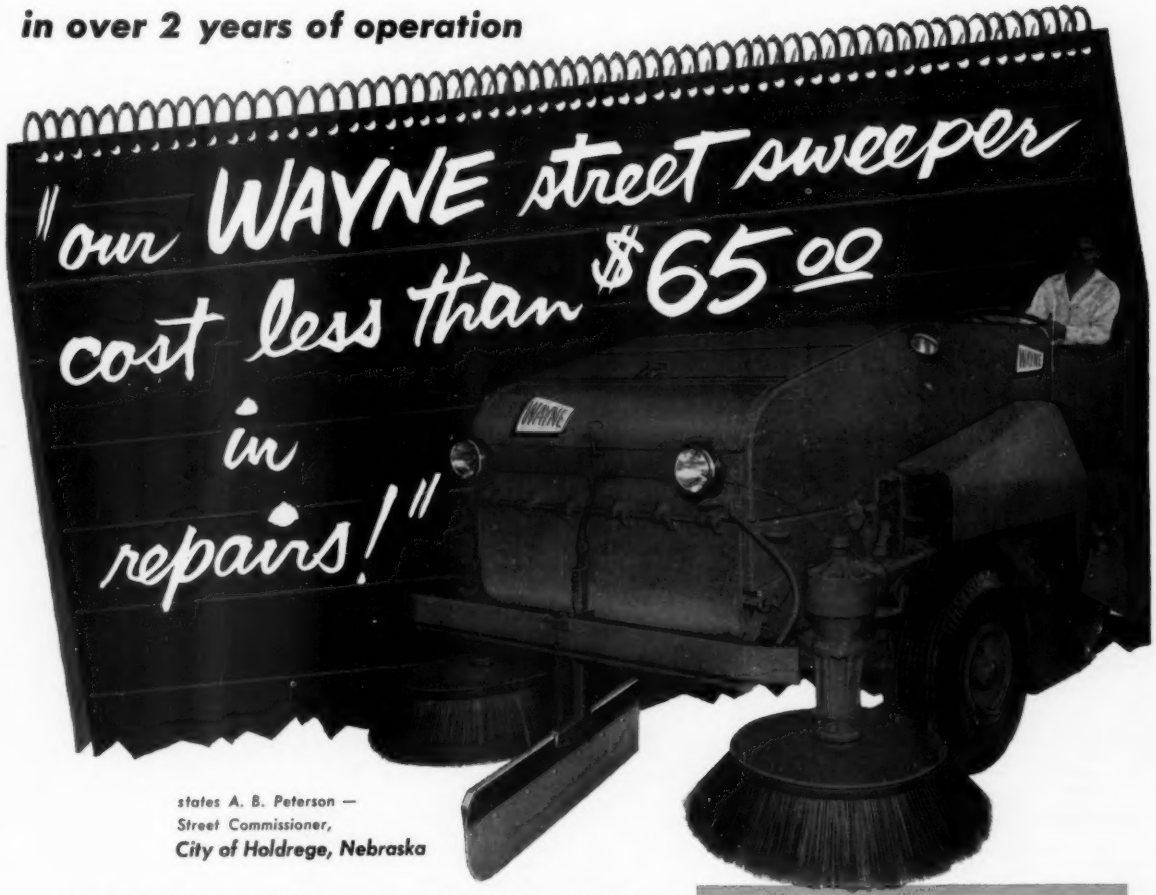
A TOTAL of 30 new mechanical street sweepers now are operating in Chicago under the direction of Lloyd M. Johnson, commissioner of streets. These represent one of the largest single purchases of mechanical sweepers on record. The sweepers made their debut on Chicago streets in the spring clean-up parade reviewed by Mayor Richard J. Daley and other city officials.

The sweepers purchased are products of Wayne Manufacturing Company, Pomona, Calif. They are equipped with a 120-hp industrial motor and have a traveling speed of 20-25 mph. Their average speed, attained in third gear, is 6-8 mph. In all, they have four speeds forward and one in reverse, and have a 14-foot turning radius.

Dual controls enable the sweeper to be driven from the curb side in the direction of traffic. The hopper has an 84-cubic-foot capacity, large enough and sturdy enough to permit it to travel with the hopper full to a central disposal point, thus reducing the problem of rehandling street debris, and eliminating much of the nuisance of piles of debris in the gutter.

in over 2 years of operation

"our WAYNE street sweeper cost less than $65.00 in repairs!"



states A. B. Peterson —
Street Commissioner,
City of Holdrege, Nebraska

Here is typical proof of the proved and tested dependability of WAYNE Street Sweepers, designed and engineered from the city's point of view.

WAYNE alone offers all the features necessary for effective, efficient, and economical street sanitation work . . .

- **Full Hopper Load Capacity** — more miles of sweeping without need for stopping. Street cleaning for pennies per mile.
- **One-time Pickup-Disposal** — Because of WAYNE's effective capacity together with its ability to travel at traffic speeds, costly second pickups and expensive special equipment are eliminated.
- **Rugged Front Gutter Broom** — Sweeps ahead of tires to protect them against glass and debris always found in gutters.

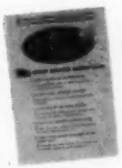
— and many other superior features that have given WAYNE an unequalled record proved in over six million miles of street cleaning . . . in more than 600 cities.

You can have a modern, low-cost street sanitation program like Holdrege, Nebraska. Get the details NOW!

IF YOU ARE NOT ALREADY USING STREET SWEEPERS —

Find out about the WAYNE Street Sweeper RENTAL PLAN that will enable your city to have a modern, street sanitation program with a WAYNE . . . *without any capital investment.*

— no obligation. For details, write:



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WAYNE MANUFACTURING CO.
1219 E. Lexington Ave.
Pomona, California

WAYNE

World's largest producer of power sweepers for cities and industry!

Informative Catalogs - Yours For The Asking!

To obtain any of the following catalogs, write directly to the manufacturers or use the Post Card on the insert following page 50

For Softening Municipal Water Supplies

99 Difficulties caused by the utilization of hard water and the many economies effected by curing them, are discussed in *Bulletin No. 2386-B* from THE PERMUTIT CO., DEPT AC-6, 330 W. 42ND ST., NEW YORK 36, N. Y. This company originated and introduced the zeolite water softener, reported the simplest method for removing hardness from a water supply.

Lightweight Chain Saw

100 One man operating the new 7-hp Model 7-29 chain saw can bring down trees as large as 10 feet in diameter quickly and easily. The 29-pound saw cuts up, down, left, right or upside down—without adjustments. It makes any type of cut—notching, felling, bucking, boring, limbing or undercutting. For additional data, write HOMELITE, 75 RIVERDALE AVE., PORT CHESTER, N. Y.

Graders, Rollers

101 Automatic operation that will please every street maintenance crew is featured in Galion's new Grade-O-Matic grader and Roll-O-Matic tandem roller. With new equipment, these units are now almost as easy to handle as a car with automatic transmission. Get the full details from THE GALION IRON WORKS & MFG. CO., GALION, OHIO.

Electric Valve Operators for Water, Gas Systems

102 You can put remote water or gas distribution stations under even closer surveillance than a station with a full-time watchman by supplying them with electrically-controlled valve operating units. The Tork-Master controller has been designed especially for this service, with spur gearing for greater efficiency and flexibility in operation. Its low first cost and thrifty operating and maintenance expense will also appeal to you. Get the full story in *Catalog T-82*, "Electric Valve Operators," by writing to TORK-MASTER DIV., 6251 W. CENTURY BLVD., LOS ANGELES 45, CALIF.

Lays More Curb in Less Time

103 Now you can lay bituminous curbs at speeds of four to six feet per minute without curbing forms. The new, self-propelled Etnyre heavy-duty automatic curb-paver lays, compacts, and finishes straight or curved bituminous curbs in one fast, easy trip. Compaction is over 90%, equal to that of a 12- to 15-ton roll. Write E. D. ETNYRE & CO., OREGON, ILL.

Assures Prompt Collection of Parking Meter Fines

104 This simple, courteous and effective method of assessing, collecting, and accounting for parking meter fines is called the Traf-O-Teria system. It assures the voluntary payment of a higher percentage of fines; saves on clerical, police and court time; and establishes good will for city officials. Get further information from TRAF-O-TERIA SYSTEM, EL DORADO, KANS.

Attractive Municipal Buildings at Thrifty Prices

105 For a quality building, smart in appearance and rugged in construction, and site-styed to your particular needs, get in touch with STRAN-STEEL CORPORATION, ECORSE, DEROIT 29, MICH. The clear-span structures that go into Stran-Steel Rigid Frame buildings are available in widths of 40, 50, 60, 70, and 80 feet and multiples thereof. Unlimited design possibilities imply versatility of use, and fast, accurate assembly of the pre-engineered structures assures cost-saving.

Questions and Answers About Sanitary Landfills

106 Starting with the basic question of "What is a sanitary landfill?" this 20-page brochure goes on to compare the various landfill methods, how to approach each, and how much land is required for a successful operation. If your community is troubled by a garbage or waste disposal problem, get *Form No. DE620* from CATERPILLAR TRACTOR CO., PEORIA, ILL. The booklet is also available in Spanish, Portuguese and French.

Install Water Service Pipe without Trenching

107 Cut costs, save time, lessen work when installing or renewing pipe under pavement—use a Trojan Pipe Puller & Pusher. With 65-pound Model A, for ½-inch to 1-inch pipe and capable of exerting 15 tons of pushing pressure, only a 5-foot trench is required. And one man can easily install the average service. Model B, for ¾-inch to 2-inch pipe, is reversible in 30 seconds and has three speeds for different soil. It needs only a 5½-foot trench, and comes either hand-powered or air-powered. Both models provide continuous action. Write for complete details to TROJAN MANUFACTURING CO., 1113 RACE DRIVE, TROY, OHIO.

Portable Steam Cleaner Cuts Maintenance Costs

108 Using a Hypressure Jenny steam cleaner, cities can clean their street and highway traffic signs, beacons, street-lighting standards, and painted curbing quickly and economically. They can also use the unit to clean trucks, cars, tunnels and walls; sanitize and deodorize garbage and refuse containers; and thaw frozen hydrants, pipes, and icy paving. For full information, write HYPRESSURE JENNY DIV., HOMESTEAD VALVE MFG. CO., P. O. BOX 46, CORAOPLIS, PA.

Saves Plumbing Bills in Public Buildings

109 Wherever public toilets, sinks and floor drains are clogged with paper, grease, sand and other debris, clear them quickly and economically with this new Plumber's Flushing Gun. Using water impact and air pressure, the gun will clean all lines up to 100 feet, and will open any number of bends in pipe. It is available from MILLER SEWER EQUIPMENT, DEPT. A.C., 4638 N. CENTRAL AVE., CHICAGO 30, ILL.

Two-Way Radio Gets New Microphone

110 A new transistorized dynamic microphone is now available as optional equipment with Motorola's "Twin-V" Radiophone. Installed in police cars and fire trucks, the microphone is said to provide mobile transmission quality comparable to that of the base station. It is also available as a dual-purpose "Speaker-Mike" which functions as a full output communications-type loudspeaker. Write MOTOROLA COMMUNICATIONS & ELECTRONICS, INC., 4501 AUGUSTA BLVD., CHICAGO 51, ILL.

Butterfly Valves

111 A new series of butterfly valves designed primarily for municipal water supply or disposal systems is available in diameters ranging from 16 to 84 inches in AWWA sizes. Valves with rubber seats in the housing are made for 25-psi and 50-psi ratings. Valves with a rubber seal ring in the disc are made for all pressure ratings, and metal-seated valves are made for psi ratings of 25 and over. Write ALLIS-CHALMERS MFG. CO., BOX 512, MILWAUKEE 1, WIS.

Portable Water Carrier

112 One boy carrying the portable Dispensit on his back, can keep city work crews supplied with cool, clear drinking water. The portable carrier is fully insulated, and is equipped with heavy web straps. It features an automatic chrome spigot, and an aluminum-enamel exterior finish. Write PARCO PRODUCTS CO., PENNSBURG, PA.

Trickling Filter Distributors

113 Sewage treatment plants using trickling filters will find a lot of their problems disappearing if they can use the General Filter Company's Gard rotary distributor. The new distributor features gravity reactors with non-clogging openings, a self-aligning master bearing secured above water level, and new "nonseal design," eliminating mercury or oil seals. Write GENERAL FILTER CO., P. O. BOX 111, AMES, IOWA.

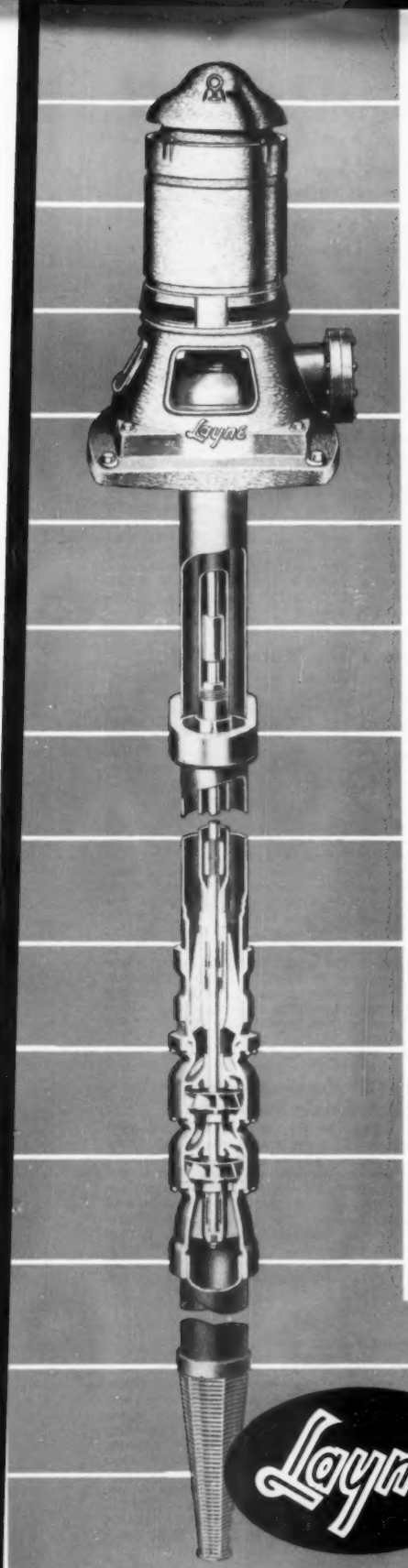
Instant Photocopies

114 Municipal departments can get instant photocopies of anything written, printed, typed, drawn or photographed with the new Apeco Dial-A-Matic Auto-Stat. The electric machine features "finger-tip" dial control, and is light in weight for easy portability. It is described in a new booklet, available free from AMERICAN PHOTOCOPY EQUIPMENT CO., 1920 W. PETERSON AVE., CHICAGO 26, ILL.

Sturdy Traffic Cones

115 Adequate protection during street repair work and at crowded intersections is provided by Robbins traffic cones, constructed of long-wearing rubber. These sturdy cones won't tear or break, and never need painting. They are guaranteed for five years of normal wear. For detailed information, write ROBBINS TIRE & RUBBER CO., INC., TUSCUMBIA, ALA.

(Please turn to page 34 for more Bulletins)



More Than 350,000,000 Gallons of Water Per Month

"The Finest Water in the South" —that's what Pensacola, Florida, says about its water supply. This rapidly expanding city, blessed by Mother Nature with ideal climate, snow-white beaches and the beauty of the Gulf of Mexico, realized the vital importance of plenty of good water and selected Layne to develop its ground water resources. Pensacola relies on Layne equipment to provide upwards of 350 million gallons of water a month.

Municipalities, large and small, join industry and agriculture in endorsing Layne—the world's largest developers of ground water resources.

LAYNE
& BOWLER, INC.
MEMPHIS
General Offices and Factory

LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD

Water Wells • Vertical Turbine Pumps • Water Treatment

WALD REFLECTO LINER

Which Catalogs Interest You?

Write directly to the manufacturers, or use the Post Card on the insert following page 50

For Better Pump Connections

116 An easy, inexpensive way to make pump connections in any water piping job is to use Dresser couplings. These efficient couplings are quickly installed using only a wrench. There is no need for exact pipe fitting or aligning operations. Joints are sealed "bottle-tight," and maintenance is simplified by easy teardown. Write DRESSER MFG. DIV., 69 FISHER AVE., BRADFORD, PA.

Portable Traffic Signals

117 Where streets are not protected by permanent traffic signals, yet occasional heavy traffic calls for effective guidance, install these portable signals. The complete, standard traffic signals are easily moved from place to place, following the flow of traffic. They are made by PORTABLE TRAFFIC SIGNALS, INC., 146 W. 21ST ST., LOS ANGELES 7, CALIF.

Low-Cost Sewer Pipe

118 Now you can get a strong, root-proof sewer or drainage line inexpensively with Bermico bituminized fibre pipe. Bermico comes in light-weight 8-foot lengths for fast, easy installation. It is available with a complete line of bituminized fibre fittings. Write DEPT. TB-7, BROWN CO., 150 CAUSEWAY ST., BOSTON 14, MASS.

Keeps Track of Toll Traffic

119 Officials can get full information on a completely integrated toll collection system from TALLER & COOPER, INC., 75 FRONT ST., BROOKLYN 1, N. Y. The company's toll-collection booths are designed for efficient, comfortable performance of personnel. Its scientific collection equipment insures accuracy and revenue protection. Design and construction data will be furnished on request.

Keeps Birds Off Buildings

120 One ribbon of Bur-Co., about ½-inch thick, spread on the ledges of public buildings will keep birds away for at least one year. This effective bird repellent will not harm the birds and is safe to use. It is available from the BURR CHEMICAL CO., 3329 AUBURN, DEPT. 11, ROCKFORD, ILL.

Reaches 40 Feet High for Overhead Maintenance

121 Whether your particular maintenance problem is the replacement of a street-light bulb or the pruning of trees in parks and along boulevards, you can depend on a Holan 2100 ladder to get the job done quickly and easily. This efficient ladder is controlled hydraulically, rotates 360°, and reaches up to 40 feet in the air. It is described in the new *2100 Catalog*, from J. H. HOLAN CORP., 4100 W. 150TH ST., CLEVELAND 11, OHIO.

Improved Street Lighting

122 How modern lighting will increase public safety and benefit business in your community, is explained in *Bulletin OTA* from MILLERBERND MFG. CO., WINSTED, MINN. This company offers the Octo-Tube, a graceful street-lighting standard constructed of corrosion-resistant steel.

Police Motorcycles

123 The speed and maneuverability of a Harley-Davidson motorcycle enable any traffic officer to handle every situation, even in peak traffic. For full facts about the new 1956 models, write HARLEY-DAVIDSON MOTOR CO., MILWAUKEE 1, WIS.

Counts Coins Accurately

124 Now you can handle up to 2,500 coins per minute easily and accurately with an Abbott coin counter. The machine counts and packages the coins, saving time and man hours. For the new Abbott money handling equipment catalog, write THE ABBOTT COIN COUNTER CO., 144TH ST., AND WALES AVE., NEW YORK 54, N. Y.

Low-Cost Street Construction

125 Hold your city's street construction costs to a minimum by using a local aggregate combined with Bitumuls Emulsified Asphalt. For information on specific grades of Bitumuls for various types of pavement construction, write AMERICAN BITUMULS & ASPHALT CO., 200 BUSH ST., SAN FRANCISCO 20, CALIF.

Aluminum Traffic Signs Wear Longer

126 It's fast and easy to install traffic signs when they are constructed of light-weight Alcoa aluminum. These signs never rust, regardless of weather conditions, collisions and road salt. They remain clearly visible for years of dependable service. For additional data, write ALUMINUM COMPANY OF AMERICA, 1680-F ALCOA BLDG., PITTSBURGH 19, PA.

Connect Branch Mains Without Interrupting Flow

127 Mueller tapping sleeves and valves or Mueller tapping crosses and valves provide you with a practical and economical way to run branch mains —without losing water or interrupting flow in the main. Calked or mechanical joint types are available to meet your requirements. For further data, write THE MUELLER CO., DECATUR, ILL.

Air Compressors With New Features

128 Get the full story on this new line of Cooper-Bessemer air compressors designated to boost efficiency in your steam-power plants, and water- and sewage-treatment plants. These units are especially compact, easily accessible, rugged, and can be conveniently served by plant piping. Write COOPER-BESSEMER, MOUNT VERNON, OHIO.

Extends Life of Fire Hose

129 Using a Roto-Jet washer, one man can wash, rinse and dry fire hose automatically. The Roto-Jet cleans uniformly, with or without detergents. It is fully described in literature from THE CIRCUL-AIR CORP., 575 E. MILWAUKEE, DETROIT 2, MICH.

How to Locate Water Leaks

130 To locate hidden water leaks quickly, accurately and economically, use Simplex Pitot equipment. Pitot units give you accurate flow records with minimum effort. These records help you reduce "unaccounted-for water." For *Bulletin 1300*, write SIMPLEX VALVE AND METER CO., DEPT. AC-7, 7 E. ORANGE ST., LANCASTER, PA.

Keeps Traffic Signals On the Job

131 Be sure the terminals in your community's traffic-control system give maximum protection against human error and the strain of operating conditions by specifying A-MP Pre-Insulated Diamond Grip Terminals. For full details on these vibration-proof, corrosion-resistant terminals, write AMERICAN PAMCOR, INC., 181 HILLCREST AVE., HAVERTOWN, PA.

Need a New Water Tank?

132 If your city's problem is the construction of a new water tank, or the repair and painting of an old tank, you will find the answer in the services of the CHICAGO TANK & BRIDGE CO., 4404 W. STATE ST., ROCKFORD, ILL. A complete description of these services will be furnished on request.

How to Light Expressways

133 Recommendations for lighting hazardous areas on high-speed turnpikes and urban expressways are presented in a new bulletin from GENERAL ELECTRIC CO., OUTDOOR LIGHTING DEPT., HENDERSONVILLE, N. C. Specific areas such as toll plazas, interchanges and bridges, include application diagrams showing the types and spacing of luminaires proven most effective. Alternate methods of lighting are suggested for most areas.

Two-Car Parking Meter with A Single Standard

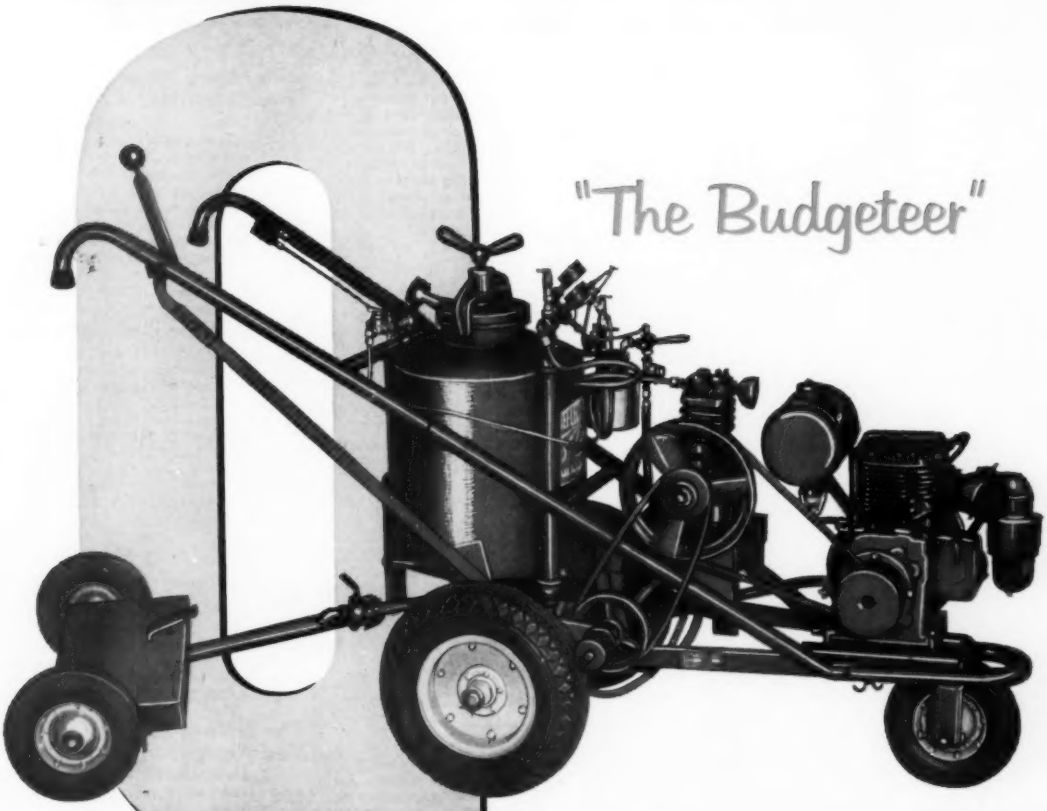
134 Improve the off-street parking service in your community with Dubl-Duals, dependable parking meters that provide two-car metering from a single standard. The two mechanisms in each Dubl-Dual are completely independent and interchangeable for better control and servicing. On-the-spot time and coin conversion has been provided to quickly meet changing needs. Get further details from THE DUAL PARKING METER CO., CANTON 2, OHIO.

Insect Control Made Fast and Easy

135 Killing flies, mosquitoes and other insect pests is fast, easy and inexpensive when you're using a Dyna-Fog insecticidal fog generator. The effective generator weighs only 100 pounds, yet, it is designed to do the work of much heavier machines. Dyna-Fogs are in regular use at United States Air Force Bases. For complete information, write CURTIS AUTOMOTIVE DEVICES, INC., DYNA PRODUCTS DIV., P. O. BOX 232-B, BEDFORD, IND.

(Please turn to page 36 for more Bulletins)

WALD REFLECTO-LINER MODEL



"The Budgeteer"

OUTSTANDING PERFORMANCE ! ASTOUNDING BUY !

All the *outstanding performance* of a big machine . . . well-balanced, sturdy monoframe chassis . . . smooth self-propelled traction with exclusive elbow-action drive* and fingertip control . . . 12 gallon capacity . . . 100% air reserve, 9.3 cfm . . . Wald Nu-Matic spray gun and Wald Shroud . . . handles paint and viscous reflective material . . . standard parts . . . powerful engine . . . many accessories, including outboard striping arm.

For town and industry, "The Budgeteer" is truly *an astounding buy* because it is the *big striper* with the *small price tag*—and very low maintenance cost! Moreover, it is convertible to many other uses that add greatly to it's value.

*Pat. applied for

WALD INDUSTRIES, INC.
HUNTINGDON, PENNSYLVANIA

Which Catalogs Interest You?

To obtain any of the following catalogs, write directly to the manufacturers or use the Post Card on the insert following page 50

Repair Sleeves for Water Mains

136 Eddy mechanical joint split repair sleeves provide a fast, economical method of repairing damaged water mains. The sleeves are furnished complete, ready for instant use, each with detailed instructions for installing. Installation is simple with only a ratchet wrench. For detailed information, write the EDDY VALVE CO., WATERFORD, N. Y.

Saves Towel Costs in Public Washrooms

137 In addition to eliminating the expense of paper towels in public washrooms, the Sani-Dri automatic hand dryer avoids the messiness of littered floors and clogged plumbing, and ends the annoyance of empty towel cabinets. The Sani-Dri provides washrooms with 24-hour automatic drying service that is clean and sanitary. It is available from THE CHICAGO HARDWARE FOUNDRY CO., 5146 COMMONWEALTH AVE., N. CHICAGO, ILL.

Drinking Fountains

138 Drinking fountains for every municipal requirement — indoors and outdoors—are designed for sanitary, trouble-free service by THE HALSEY W. TAYLOR CO., 137 NORTH ST., N. W., WARREN, OHIO. These fountains feature an automatic device which maintains constant height in the drinking stream. Fingers or lips cannot come in contact with the water source. Write for literature.

Cleans Parking Meters

139 A machine designed specifically for cleaning parking meters is offered by ZENITH MFG. & CHEMICAL CORP., 82 BEEKMAN ST., NEW YORK 38, N. Y. It cleans, rinses, polishes and dries the meters, eliminating hand work and service calls. Two gallons of cleaning solution and three gallons of rinsing solution are furnished with each machine. Write for details.

Low-Cost Water Treatment

140 Installed in your community's water filtration plant, an Aloxite aluminum oxide porous bottom requires only one filter medium, and eliminates the need for graded gravel. Backwashing is faster and better with less wash water. The system is easy to install and simple to operate. For full facts, write THE CARBORUNDUM CO., REFRACTORIES DIV., PERTH AMBOY, N. Y. Ask also about Aloxite aluminum oxide plates and tubes for sewage aeration.

Faster Ice Control with Rock Salt

141 Municipal sanitation departments can make their ice and snow control programs easier, faster and more economical by using Cayuga rock salt. Smaller, FC-size Cayuga rock salt goes to work faster, to give you cleaner streets. At a 25° temperature, it spreads at the rate of one pound per square yard over ½-inch of compacted snow and 1½ inches of loose snow, melting practically all of the snow in three hours. Get full facts from CAYUGA ROCK SALT CO., INC., MYERS, N. Y.

Elevated Water Tanks

142 Elevated steel tanks for water supply, ranging in capacity from 5,000 to 2,000,000 gallons, are available from R. D. COLE MFG. CO., NEWNAN, GA. These tanks range from standard hemispherical self-supporting bottom types to spherical tanks on tubular towers. The booklet, *Tank Talks*, will be furnished on request.

Fire Hydrants

143 In any weather and all temperatures, these fire hydrants function with a minimum of maintenance. Water, ice and sandy deposits cannot reach key parts to rust, freeze or clog operation. A broken hydrant is easily replaced without excavating. For full details on the Mathews hydrant, write THE R. D. WOOD CO., PUBLIC LEDGER BLDG., INDEPENDENCE SQ., PHILADELPHIA 5, PA.

Refills for Rotary Street Sweepers

144 Hickory fibre, palmyra stalks, African bass, and high-carbon gutter broom wire for refilling rotary street sweepers may be obtained quickly and inexpensively from the TUFFIBRE CO., 17 KEARNEY ST., EAST ORANGE, N. J. Write for details.

Cathodic Protection Cuts Maintenance Costs

145 The Electro Rust-Proofing Corp. will furnish a complete program of design, installation and service for the application of cathodic protection to either new or old steel water storage tanks, deep well pumps, and clarifier and flocculator mechanisms in water and sewage treatment plants. For full details, write ELECTRO RUST-PROOFING CORP., 30 MAIN ST., BELLEVILLE 9, N. J.

Controls Dust on Unpaved Streets

146 With a Gulf Sani-Soil-Set, cities can completely eliminate dust annoyance on unpaved streets and roads. The Sani-Soil-Set is easy to apply by hand or sprinkling truck, and remains effective for long periods. One application per season or year is usually sufficient. A pamphlet with full details may be obtained from the GULF OIL CORP., 1822 GULF BLDG., PITTSBURGH 30, PA.

Extra Copies in a Hurry

147 Time is money, and ACME VISIBLE RECORDS, INC., CROZET, VA., can save both for you with Photo Panels, the quick, facile way to reproduce lists of all types. Only three major steps are involved: compose on your typewriter, photograph, reproduce. Full details will be sent on request.

Keep Those Sewers Open

148 Power sewer cleaning machines, an all-purpose windlass, expansion sewer buckets, and other sewer-cleaning accessories are designed for fast, dependable operation by the CHAMPION CORP., 4715-35 SHEFFIELD AVE., HAMMOND, IND. Details on request.

Take the Chance Out of Your Fire Alarm System

149 Insure your community's life with a fast, positive, controlled fire alarm system—install a Gamewell. With it you will decrease the "chance" factor, thus lessening loss of life and property damage, and will benefit from an upgrading in Fire Underwriter's classification. For details and for ideas on how to sell the need for such a system to your municipality write GAMEWELL CO., NEWTON UPPER FALLS, MASS.

Installs Pipe Underground

150 If your problem is pushing pipe four inches in diameter and smaller, the Greenlee Tool Co. recommends its No. 790 pipe pusher. For installing pipe larger than four inches diameter, use the No. 795 pusher, and for very large pipe installation jobs, try the No. 797 gasoline-driven power pump. For full information on all these efficient machines, write the GREENLEE TOOL CO., ROCKFORD, ILL.

Street-Lighting Standards

151 These graceful street-lighting standards are constructed of high-strength, low-alloy steels, resist corrosion, and are unaffected by strong winds and heavy storms. They are fully described in a new *Lighting Standards Catalog* from KERRIGAN IRON WORKS, INC.,NASHVILLE, TENN.

The Refuse Truck You Need

152 There's a Pak-Mor refuse collection body to meet every municipality's need, whether it is a conventional 13-cubic-yard truck-mounted unit or a custom-built 38-cubic-yard trailer. Pak-Mor refuse bodies haul more refuse per load at minimum initial investment, maintenance, and operational costs. For additional information on how Pak-Mor truck-mounted bodies and trailers can serve, you better write to PAK-MOR MFG. CO., LOOP 13 & ROOSEVELT, SAN ANTONIO, TEXAS.

Batteries for Every Municipal Need

153 Every storage battery requirement in any size municipality can be effectively handled by an Exide battery. There are dependable batteries for fire alarm and police telegraph systems, police cars, fire trucks, pavers, tractors and bulldozers. Effective units are also available for harbor and river patrol vessels, and emergency lighting systems. Write EXIDE INDUSTRIAL DIV., THE ELECTRIC STORAGE BATTERY CO., PHILADELPHIA 2, PA.

Municipal Incineration

154 An increasing number of towns and cities throughout the country are turning to incineration as an effective answer to their waste disposal problems. You can assure modern, sanitary incineration through the services of THE AMERICAN INCINERATOR CORP., 5710 E. NEVADA, DETROIT 34, MICH. The company offers special assistance in garbage or waste analysis, capacity determination and appropriate estimates—all without cost. A new brochure, *Incinerama*, is available on request.

(Please turn to page 38 for more Bulletins)

Bayer & Mingolla's first BatchOmatic Plant operated only a few months when the need for a second plant arose . . .

Having had actual experience with the many exclusive principles, the choice was easy. Here is their second BatchOmatic being erected.

New England contractor buys second Barber-Greene Batch Plant within a year

Experience with the fast, easy erection, automatic operation and unique versatility is what sold B & M Crushed Stone its second Barber-Greene BatchOmatic within one year. In fact, these new operating advantages are selling all three (2000-, 4000- and 6000-pound) B-G Batch Plants to contractors all over the United States and Canada.

Owners, operators and inspectors everywhere are giving their endorsement to the BatchOmatic—the first plant ever designed from its original conception for automatic operation.

Exclusive BatchOmatic features include:

Simultaneous weighing of all sizes of aggregate . . . eliminates the human element in achieving accuracy and maximum capacity.

Instant change-over from automatic to manual operation . . . provides mixes for the drive-in trade . . . instantly reset to preset repetitive cycle operation.

New Dyna-Mix pugmill . . . gives thorough coating in less time than any other pugmill.

Instant, positive inspection of aggregate gradation and weight.

56-16-WB

Write for your copy of "Principles of the BatchOmatic"—clearly illustrated

See you at the ROAD SHOW

Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

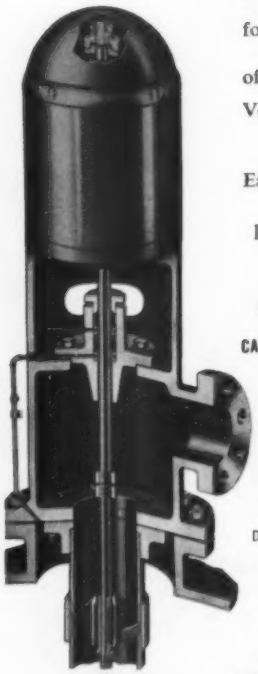
CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

Verti-Line
CLOSE-COUPLED PUMPS
for every Industrial Vertical Pump Installation

The Verti-Line Close-Coupled Pump is not just another deepwell pump adapted to industrial service. It is designed and engineered for such jobs as booster service, fire protection, cooling, transfer and general service pumping of water and other fluids, corrosive or non-corrosive.

Verti-Line Pumps are made to the highest standards of quality in workmanship and materials to assure a *precision built* product. Each unit is thoroughly tested and rigidly inspected, insuring ease of field assembly and perfect performance—guaranteed to meet the most exacting specifications.

Whatever your vertical pump needs, investigate Verti-Line Pumps before you buy.



CAPACITIES FROM 20 GPM TO 30,000 GPM — HEADS TO 600 PSI

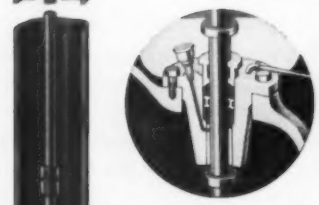
Heavy-Duty Fabricated Discharge Head With Solid Shaft Motor

In-Line "T" Type Fabricated Discharge Head With Hollowshaft Motor

Standard Discharge Head With Combination Gear and Motor Drive

TYPICAL CONSTRUCTION FEATURES

(Open lineshaft type . . . Enclosed lineshaft also available)



The packing assembly is simple and effective. It is easily accessible and consists of a packing container, lantern ring, packing rings, pressure relief bushing, gland, fluid by-pass and lubrication fittings. Mechanical shaft seals also available.

Outstanding feature of bearing assembly is removable stainless steel shaft sleeve. This prevents shaft wear and bearing journal corrosion, and is easily replaced without special tools. You simply remove the old and slip on the new which is secured by a stainless steel collet.

Dual bowl bearings of rubber and bronze are supplied in most open and enclosed lineshaft pumps. Extra stability and resistance to abrasives mean longer life.

Send for your free copy of our new booklet, "Pumps for Sale." Ask for Bulletin B-86.

Verti-Line Pumps are the exclusive products of

LAYNE & BOWLER PUMP COMPANY

general offices and main plant

2943 VAIL AVENUE • LOS ANGELES 22, CALIFORNIA

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 50

Strainers for Municpal Water Wells

155 Keep the water in municipal wells flowing and, at the same time, keep out coarse sand and large pebbles, by installing a Cook well strainer. These strainers are made with V-shaped, self-cleaning slots that eliminate clogging and deliver maximum gpm. They assure fast, dependable pumping and lengthen pump life. Write COOK WELL STRAINER CO., 3264 BEEKMAN, CINCINNATI 23, OHIO.

Records Volume, Type and Flow of Traffic

156 Adequate traffic control at busy intersections demands knowledge of the volume, type and directional flow of traffic. You can get this information quickly, accurately and economically with a modern Denominator. All you do is depress a key. No pencil and paper is required. Get full facts from DENOMINATOR CO., INC., 261 BROADWAY, NEW YORK 7, N. Y.

Concrete Curing Mats

157 Street paving can be cured in as little as three days with Fulco concrete curing mats, according to Fulton Bag & Cotton Mills. These mats are so tough they can be re-used from 50 to 75 times. They are fully described in literature from FULTON BAG & COTTON MILLS, P. O. BOX 1726, ATLANTA 1, GA.

Keeps Swimming Pools Clean & Attractive

158 Whether your municipal swimming pools are of steel or concrete, a Parlon-based finish will keep them attractive and easy to maintain. Parlon formulations provide a colorful finish for pools that is designed to withstand the damaging effects of water and water-treatment chemicals. For full details, write HERCULES POWDER CO., 997 MARKET ST., WILMINGTON 99, DEL.

Fire Hose

159 Fire hose designed for long life and easy storage is available from the BI-LATERAL FIRE HOSE CO., 20 N. WACKER DR., CHICAGO 6, ILL. The company manufactures all types of fire department hose including efficient cotton rubber lined hose. Detailed information will be furnished on request.

Sluice Gates

160 Sluice gates in a wide range of types and sizes for filtration and water softening plants, pumping stations and sewage treatment plants are made by THE FILER & STOWELL CO., 147 E. BECHER ST., MILWAUKEE, WIS. These gates are accurately machined for true alignment and smooth, trouble-free operation. They may be operated by manual, hydraulic or electric power. Write for *Bulletin No. 753.*

Speeds Sewer Cleaning

161 It's fast and easy to clean sanitary sewers 8, 10 and 12 inches in diameter when you're using the efficient Roto-Rod. The machine utilizes a steel rod, 1,000 feet long, with a special measuring meter. Sharp blades revolving at high speed cut roots, grease, scale, sludge and other debris. For further details, write ROTO-ROOTER CORP., 301 UNIVERSITY AVE., DES MOINES 14, Iowa.

(See p. 40 for more Bulletins)

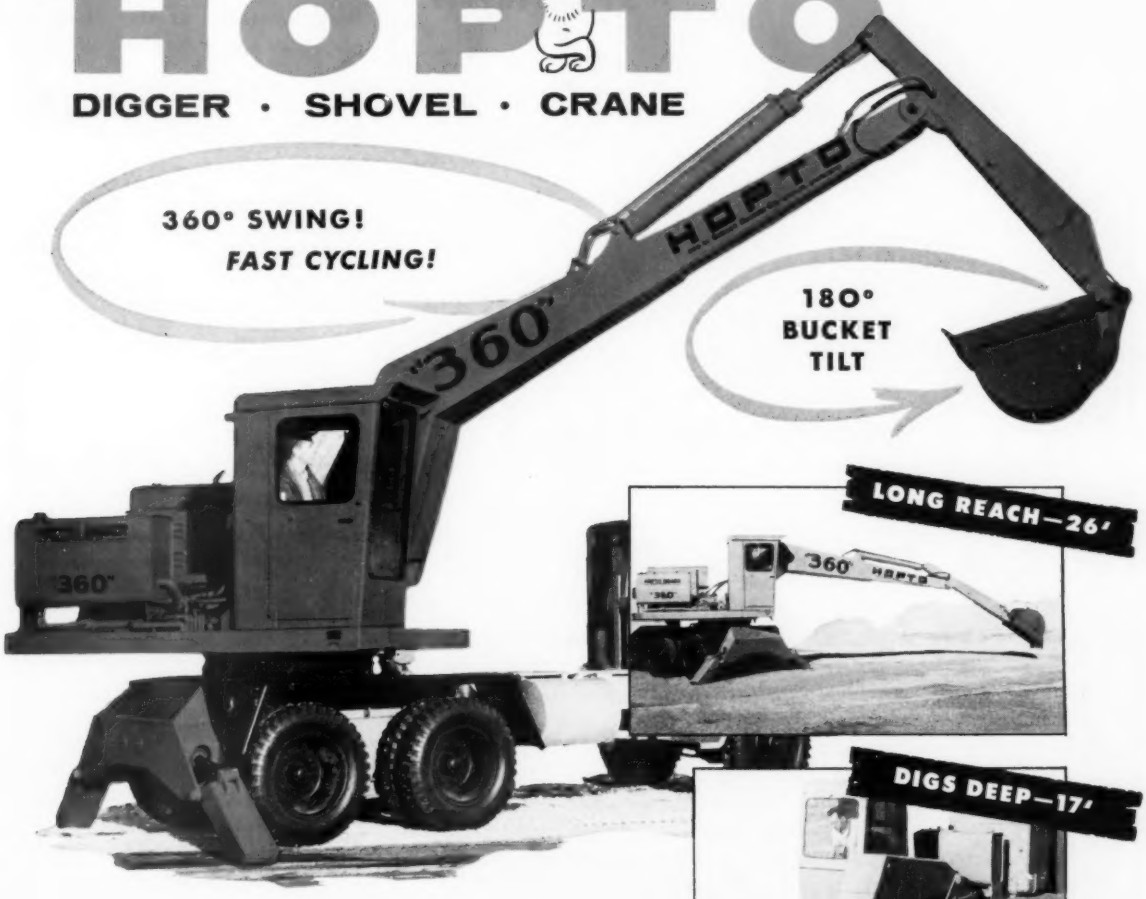
NEW 360 HALF-YARD

HOPTO

DIGGER • SHOVEL • CRANE

360° SWING!
FAST CYCLING!

180° BUCKET TILT



LONG REACH—26′

DIGS DEEP—17′

LIFTS HIGH—12′

Here's the completely hydraulic *mobile* shovel that equips you to do more jobs with lower equipment investment . . . *at greater profit!*

The 360 HOPTO swings three hundred and sixty degrees from its over-the-cab travel position. Operator's cab swings with unit for face-forward, *safe* operation. Feather-touch controls actuate every movement from positioning of outriggers to fast-cycling swing and 180° tilt of bucket! Heavy-duty hydraulic system with built-in relief valves gives an easily managed, oil-cushioned, 20 ton force to dipper stick!!!

Interchangeable backhoes and shovel buckets have H and L replaceable teeth and are available in three-eighths and one-half yard sizes. Check *NOW* on the many advantages of owning this work-hungry, mobile digger, shovel, crane!

Write today for complete information on the '360' or any one of six quarter-yard HOPTO Models!

BADGER MACHINE CO.

DEPT. D • WINONA, MINNESOTA

ASPLUNDH IS YOUR BEST BUY IN CHIPPERS

because . . .

Only Asplundh Chippers have been engineered, developed and *proven* by the largest tree company in the world, to whom *safety, speed, and economy* in operation have been paramount considerations . . . yours to benefit by when you use Asplundh Chippers.

Only Asplundh offers you these exclusive features: positive-locking tapered blades and wedges for absolute safety. A minimum of moving parts that means less maintenance, lower repair costs. A 300 lb. flywheel to assure uniform, *faster chipping action*, and that permits a reduced power unit resulting in lower operating costs.

Only Asplundh's modern design combines the most advanced engineering with a pleasing appearance for better public relations.

These are but a few of the many reasons why Asplundh Chippers are *your best buy;* for the whole story, mail the coupon below for your FREE CHIPPER BOOKLET.

Better still, ask for a no-obligation demonstration.

ASPLUNDH CHIPPER COMPANY
505 York Road, Jenkintown, Pa. Dept. C-4

☐ Send FREE BOOKLET, *The Modern Approach to the Brush Problem*
☐ Arrange free demonstration.

NAME_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

BY ACTUAL TEST THE FASTEST CHIPPER MADE

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 50

Water and Sewage Pumps

162 There are pumps in the Fairbanks-Morse line to move any magnitude of municipal water supply at any appropriate pressure, and other pumps to meet ordinary or unusual problems of sewage treatment and waste disposal. To select the right pump for your specific job, get full facts from FAIRBANKS, MORSE & CO., DEPT. AC-7, 600 S. MICHIGAN AVE., CHICAGO 5, ILL.

Curb & Gutter Forms

163 Whatever your city's curb-and-gutter paving requirements, Heltzel has the forms to do the job quickly and economically. The company's curb-and-gutter forms have three interchangeable face forms—Type A for straight face curbs; Type B for single (bottom) radius face curbs; and Type C for double radius (S-shaped) face curbs. For additional information, write HELTZEL STEEL FORM & IRON CO., WARREN, OHIO.

Protects Water Pipelines Inside and Out

164 Coated with Barrett coal-tar enamels and coatings, the interior of your water pipeline is protected against tuberculation and incrustation, and the pipeline exterior is protected from corrosion. There are enamels for every pipe-coating need—under all types of climatic conditions and topography. For technical literature and reference manuals, write BARRETT DIV., ALLIED CHEMICAL & DYE CORP., 40 RECTOR ST., NEW YORK 6, N. Y.

Vibrating Compactor for Blacktop Patches

165 Street patching operations are simplified with the Jackson vibratory compactor, an efficient machine that delivers up to 4,200 2-ton blows per minute. The vibrator will compact bituminous mixes in 4- and 5-inch layers at the rate of 1,800 to 2,000 square feet per hour. It is operated from a Jackson power plant on an auto trailer. For further information, write JACKSON VIBRATORS, INC., LUDINGTON, MICH.

Automatically Refibers Rotary Sweeper Cores

166 Cities can transform any broom refibering job into a smooth, automatic operation with the Cor-A-Matic, available from MUNICIPAL RESEARCH & DEVELOPMENT CORP., 9798 E. MARGINAL WAY, SEATTLE 8, WASH. One man operating the Cor-A-Matic can refiber rotary sweeper cores automatically in 12 minutes. He simply feeds the fiber, and the machine does the rest. Write for details.

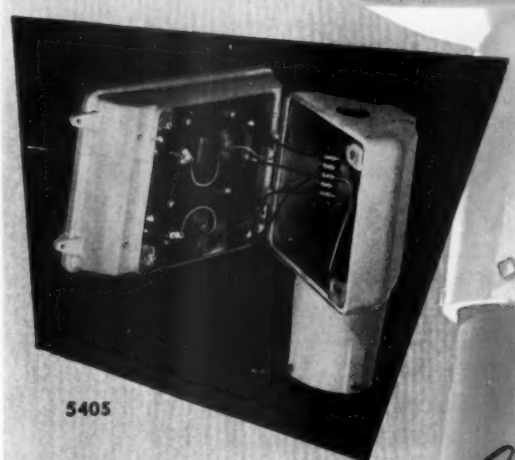
Park Maintenance Simplified

167 In addition to handling a 16-inch tiller attachment, the 3.6-hp Super Rotary Tiller Mower will power a 30-inch reel lawn mower, a 30-inch sickle bar mower, a 21-inch rotary mower, a 26-inch rotary weed cutter, and other attachments designed to simplify park, lawn and airport maintenance. The efficient "riding" unit is also offered in a 2¾-hp model. Get full facts from THE MIDLAND CO., SOUTH MILWAUKEE, WIS.

(See p. 43 for more Bulletins)

AUTOFLOW

Neon Signals

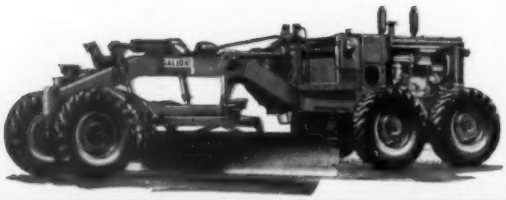


5405

The new Model AN-1 AUTOFLOW Neon Signal is engineered for application to standard AUTOFLOW adjustable signals without modification. Designed for all conventional mounting arrangements with standard brackets. Incorporates large neon tube letters (4" high) on 10" x 15" face. Unitized cast aluminum housing. Light in weight, corrosion resistant, weather-proof.

SOUTHERN *Signals* INC.

222 BEACH STREET • P. O. BOX 1303 • SHREVEPORT, LOUISIANA



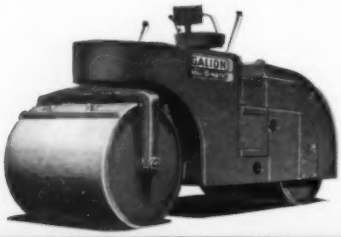
GRADE-O-MATIC

GRADE-O-MATIC Drive utilizes a torque converter with tail shaft governor and power-shift transmission, in combination with correct balance of grader weight and power to produce most "push-power" at the blade. No foot clutch or gear shift lever. Automatic features simplify operation and provide top-most performance.

GRADE-O-MATIC GRADERS

Model T-700 . . . . . 190 h.p., 40,125 lbs.
Model T-600 . . . . . 140 h.p., 30,420 lbs.
Model T-500 . . . . . 125 h.p., 25,765 lbs.

THESE NAMEPLATES *are your assurance of* UNSURPASSED PERFORMANCE



ROLL-O-MATIC

ROLL-O-MATIC Drive utilizes a torque converter in which the engine driving force is automatically MULTIPLIED and applied in an infinite number of driving ratios as the work demands. No master clutch, no engine throttle- no gear shifting. Shock loads and engine stalling are eliminated. Life of roller is increased.

ROLL-O-MATIC ROLLERS

TANDEM MODELS — Variable Weight
Two-Axle . . . . 5-8, 8-10½, 8-12, 10-14 ton sizes.
Three-Axle . . . . . 14-20 ton size.
THREE-WHEEL MODELS
"Chief" . . . . . 4 sizes, 10 to 16 ton.
"Warrior" . . . . . 2 sizes, 7 to 10 ton.
Both "Chief" and "Warrior" Three-Wheel Rollers are available with ballastable or non-ballastable rolls.

Write for complete information

GALION

THE GALION IRON WORKS & MFG. COMPANY

General and Export Offices, Galion, Ohio, U.S.A. Cable address: GALIONIRON, Galion, Ohio

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 50

Signal Cable

168 Guarantee the reliability of your city's traffic signals, warning lights and other traffic handling units with Anaconda multi-conductor cable. You can get Anaconda with as many as 37 separate conductors in a single cable if you wish. For full information, write ANACONDA WIRE & CABLE CO., 25 BROADWAY, NEW YORK 4, N. Y.

Digger Plus Attachments Does Many City Jobs

169 The new Pippin excavator, mounted on a wheel- or crawler-type tractor, will clean catch basins, install culverts, grade roadsides, dig drainage ditches, backfill, shovel, and lift heavy pipe. A variety of sturdy attachments are available for these and other municipal operations. For *Folder M-4*, write PIPPIN CONSTRUCTION EQUIPMENT, INC., WHITE RIVER JUNCTION, VT.

Swimming Pool Equipment

170 Everything for the municipal swimming pool, including supplies, chemicals and equipment, is described and illustrated in *Catalog and Data Book No. 506*. A special supplement is devoted to pool care and maintenance. For a free copy, write MODERN SWIMMING POOL CO., INC., ONE HOLLAND AVE., WHITE PLAINS, N. Y.

Remote Control of Water, Sewage Systems

171 New supervisory control systems for remote metering and control in waterworks, sewage plants and municipal pumping stations are described in a new, illustrated brochure from SPARTON CONTROL SYSTEMS DIV., THE SPARKS-WITHINGTON CO., JACKSON, MICH. Copies on request.

New Chain Saw

172 Weighing only 26 pounds complete with 18-inch bar and chain, the new Mall "G P" chain saw is light enough for easy handling, yet, tough and fast enough for production cutting. The saw has a direct-drive, 3,000 fpm chain speed, and an adjustable, fixed-jet carburetor. It is available from the MALL TOOL CO., 7735 S. CHICAGO AVE., CHICAGO 19, ILL.

Street-Lighting Standards

173 An easy way to reduce your city's over-all street-lighting costs is to install Hapco aluminum lighting standards. These light-weight poles are easy to install and inexpensive to maintain. They won't rust or corrode, never need painting, and stand up well in any weather. For the new *Hapco Catalog*, write HUBBARD ALUMINUM PRODUCTS CO., PITTSBURGH 1, PA.

Free Handbook on Water Analysis

174 This handbook gives you simplified procedures, clearly explained, for all important water analyses. In addition, it has sections dealing with portable test equipment for field analyses; and with apparatus and test chemicals. For your copy, write HACH CHEMICAL CO., AMES, IOWA.

(See p. 48 for more Bulletins)

Eliminate This!

with EL-TEC

RADIO TRAFFIC CONTROLLERS

Crashes like this Cost Lives . . . Property . . . Money . . . and tie-up badly needed equipment and highly trained personnel. *These tragedies virtually can be eliminated!*

The driver of an emergency vehicle can have uncontested, clear right-of-way for blocks ahead . . . he can stop all traffic on his route. He does it with EL-TEC, an electronics system for controlling traffic from a moving emergency vehicle.

EL-TEC is new, but years of research and development have proved its dependability. The system and equipment have been hailed as the most important stride in emergency traffic safety in many years.

EL-TEC has been commended by the National Safety Council, the nation's leading police, fire and traffic officials as well as various State Safety Committees and Highway Commissions.

Electronic Protection Inc.

Subsidiary of Standard Coil Products Co. Inc.

2085 North Hawthorne Avenue - Melrose Park, Illinois

The Only FCC Approved System For Emergency Traffic Control

6401

GET THE FACTS!
SEND COUPON TODAY!

You owe it to yourself, your community, your firemen, policemen and all emergency drivers to learn how low-cost, reliable EL-TEC Radio Traffic Controllers can save lives, prevent suffering, cut down property damage, keep all emergency equipment "in service."

ELECTRONIC PROTECTION INC.
Subsidiary of Standard Coil Products Co. Inc.
2085 North Hawthorne Avenue, Melrose Park, Illinois.

☐ Please have representative call.
☐ Please send literature on EL-TEC.

Name_____

Title_____

Address_____

City_____ State_____

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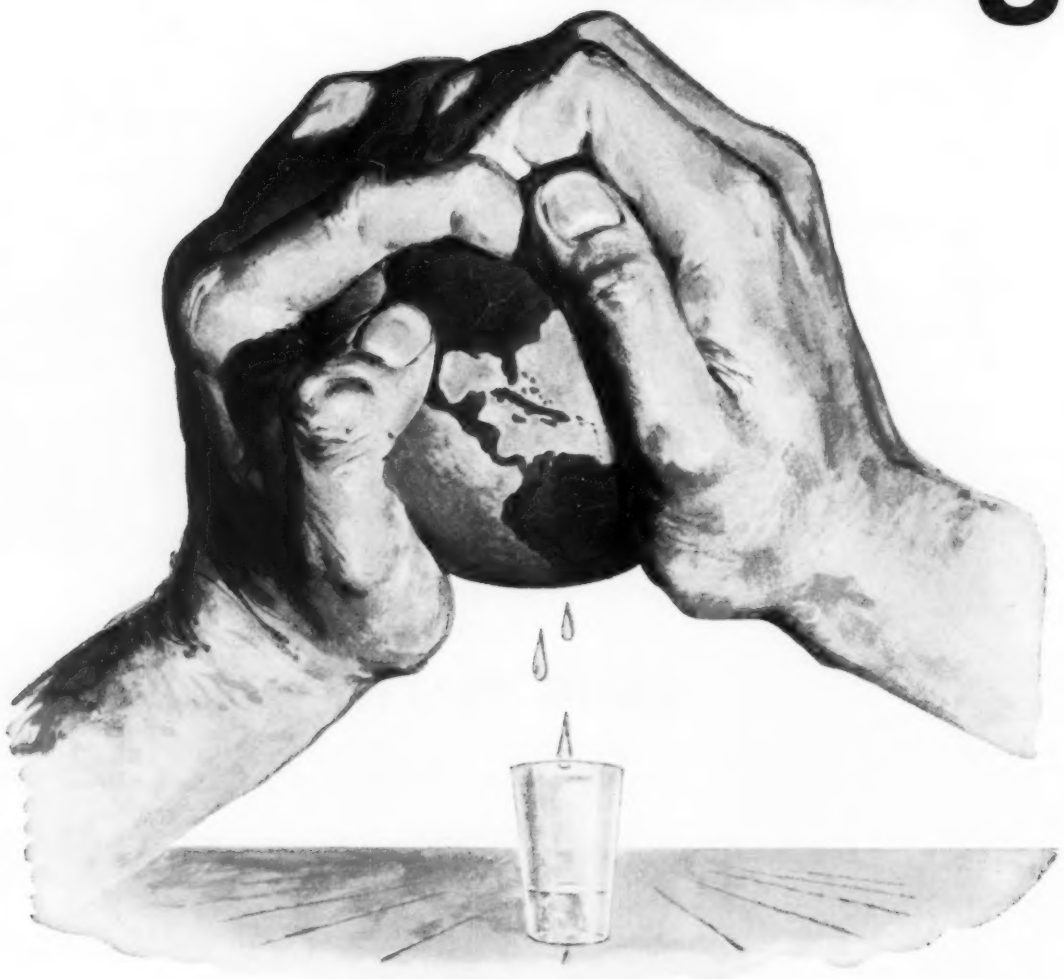


NO ONE KNOWS America's water problem better than you.

With water consumption today four times greater than fifty years ago . . . and mounting daily . . . your responsibilities are heavier than ever.

Many of you not only must find new sources of water but new ways to conserve your present supply. This calls for the cooperation of an informed and alert public, conscious of your problem and mentally conditioned to help you solve it.

MODERNIZED **cast iron**

squeeze is on!

Here, we can and will continue to help.

Our national campaign, reaching millions, stresses the increasing need for industry and homeowner alike to use water wisely and plan in advance for adequate water facilities. It urges realistic water rates and asks support for the forward-looking legislation and bond issues that will insure a plentiful supply for the future.

It's designed to help America conserve its most precious national resource . . . and keep water flowing, freely and abundantly, for all.

CAST IRON . . . the pipe that's bought on proof, not claims

No other pipe can point to so convincing a record of long life.

For over 70 public utilities in America, cast iron mains laid over a century ago are still giving satisfactory service. This demonstrated record of long life (made in the ground, not printed claims) not only gives the public the dependability it has a right to expect in a water system . . . it saves tax dollars as well. Once in the ground, cast iron serves for generations with minimum maintenance. Cast iron's long term economy pays off!

Today, water officials can rely on even better cast iron pipe. Modernized cast iron, centrifugally cast to be even tougher, stronger, more uniform. And where needed and specified, lined with cement mortar to assure sustained carrying capacity throughout its long service.

You specify wisely and well when you specify cast iron pipe for your water system. The experience of centuries proves you chose the best.

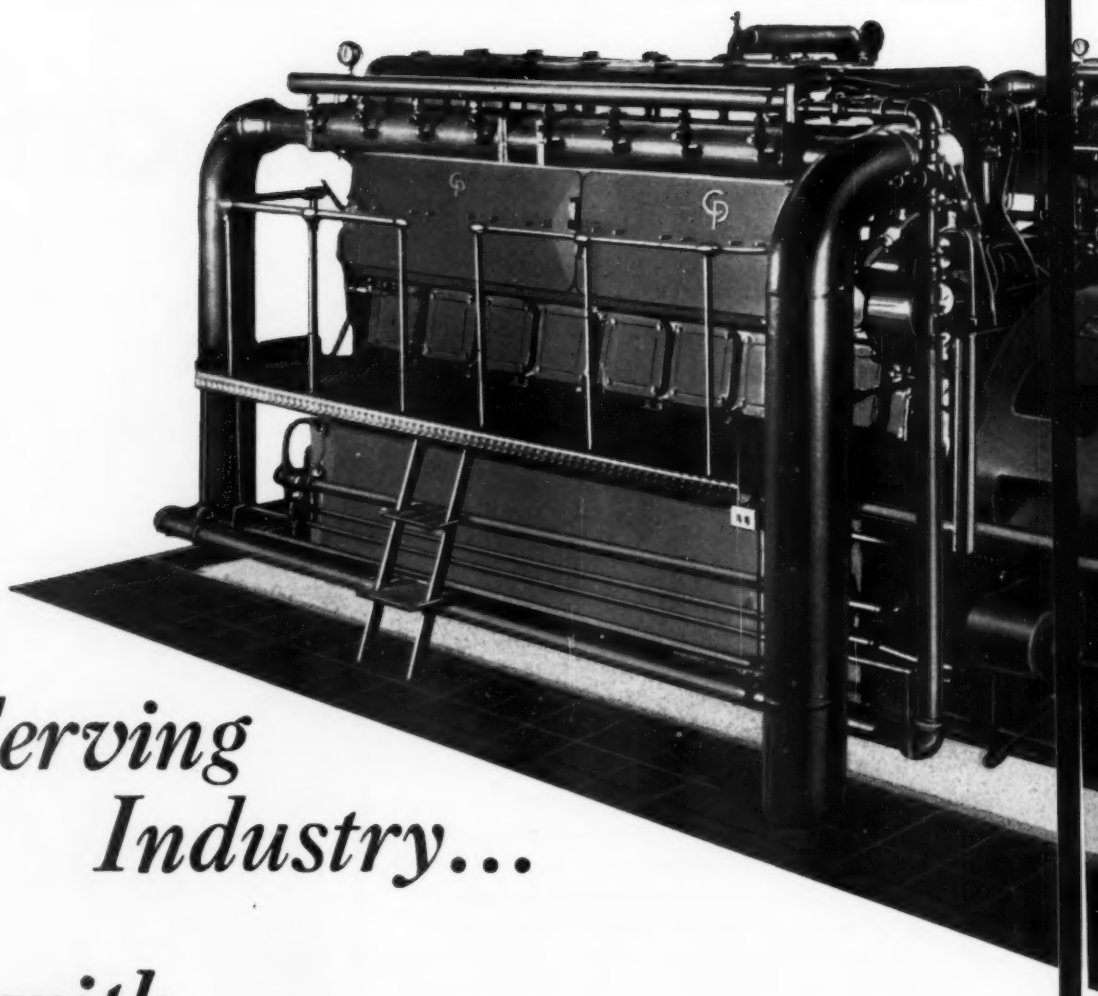
Cast Iron Pipe Research Association, Thomas F. Wolfe, Managing Director, 122 So. Michigan Ave., Chicago 3, Ill.

This gallant old cast iron water main laid in 1850 is still serving and saving tax dollars for the citizens of Buffalo, N. Y.

CAST Q IRON ®

The Q-Check stencilled on pipe is the Registered Service Mark of the Cast Iron Pipe Research Association.

pipe FOR MODERN WATER WORKS



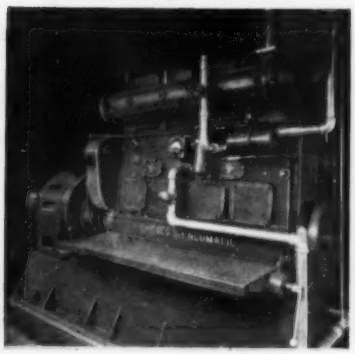
Serving Industry...

with

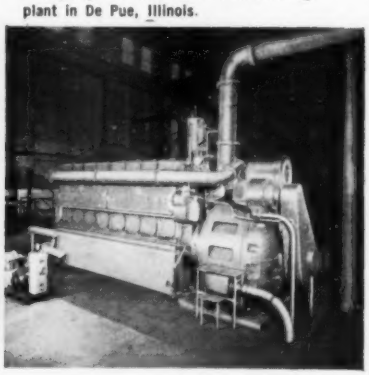
'round the clock

Two Chicago Pneumatic 1000 kw Diesel units furnishing power in a Midwestern Public Utility.

CP Slow Speed Dual-Diesel engine runs off waste sludge to furnish power for a Connecticut Sewage Treatment Plant.



CP 8-cylinder Diesel used as a standby emergency unit in a well known smelting plant in De Pue, Illinois.



Sewage gas engines in a large eastern municipal sewage treatment plant.

dependability

You can't beat Chicago Pneumatic Diesel, Dual-Fuel and Gas Engines for power, performance and dependability. Efficient CP engines are available in sizes capable of delivering from 120 HP to 2280 HP and in normally aspirated or supercharged models.

Chicago Pneumatic will be glad to work with you in preparing plans and specifications involving the CP engine best suited to fill your specific needs. For details, write *Chicago Pneumatic Tool Company. 8 East 44th Street, New York 17, New York.*

Chicago Pneumatic

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES • ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

how to

CUT CORROSION LOSSES

a report by Koppers Company, Inc.

Russell C. Stromquist
Corrosion Consultant

Recently, we were asked to recommend protective coatings in a plant on the West Coast. In analyzing their coating and enamel needs, we did our usual survey of the installation. After the survey, the customer's Chief Engineer remarked, "You fellows certainly go to a lot of trouble just to tell us what coating system we should use."

We do—because we know it is good for our customers and, therefore, good for us. Case history records prove clearly that careful study *before* making recommendations insures a better protective coating job at lower annual cost. In analyzing protective coating needs, our corrosion engineers follow a "pre-coating check list" based on experience on thousands of jobs.

* * *

The first step in the pre-application survey is a study of the environment. Specifically, you should always take into account the corrosive atmosphere: such factors as acid fumes, intense sunlight, salt air, etc. Physical environment—exposure to abrasion or impact—also plays an important part in the selection of an effective coating system.

The extent of temperature variation and expected minimum-maximum temperatures are important considerations, since the coating chosen must (a) resist low-temperature embrittlement, (b) resist high-temperature flow and (c) harden properly at service temperature.

The moisture environment too, is important in selecting protective coatings. Besides necessary water resistance, the coating should stand-up under pronounced wet-dry cycles.

A thorough cost analysis is a vital part of any pre-coating survey. Many factors are involved, varying in importance with the specific application. For example, total coating cost—made up of surface preparation and application costs—must be balanced against the cost of periodic maintenance. In some cases, the coated surfaces will not be accessible and coating-life will be a *direct* measure of the life of the material.

The cost of probable shut-down or loss of production time is perhaps one of the most important evaluations that must be made in intelligent selection of corrosion-preventing coating systems. Often, it outweighs the direct replacement costs of materials to be protected.

* * *

This pre-coating check list, detailing the protection required and under what circumstances, is a key factor in the exceptional performance of Koppers Bitumastic® coatings. Such thoroughness sometimes leads us to willingly recommend some material other than one of Koppers eleven basic Bitumastic coatings to solve a customer's problems.

* * *

In the next report, we will discuss why surface preparation is so vital to the life and economy of any protective coating. Meanwhile, we'd like to hear about your corrosion problems. Koppers Company, Inc., 1300 Koppers Bldg., Dept. 103H, Pittsburgh 19, Pa. District Offices: Boston, Chicago, Los Angeles, New York, Pittsburgh and Woodward, Ala.

KOPPERS

BITUMASTIC
REG. U. S. PAT. OFF.
COATINGS AND ENAMELS

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 50

Water-Works Valves

175 "It's easier to open or close a Golden-Anderson valve than to drive a car with power steering," says the GOLDEN-ANDERSON VALVE SPECIALTY CO., 1200 RIDGE AVE., PITTSBURGH 33, PA. Just a "flick of the wrist" or the press of a button will fully open or tightly close any G-A valve. Line pressure furnishes all the power. Write for *Bulletin G-4.*

Speeds Mopping Chores in Public Buildings

176 Cleaning floors in schools, hospitals and other public buildings is fast, easy and efficient when you use a Geerpres mop wringer. These wringers get your mops dry without twisting or tearing. There are sizes and styles for every mopping need, and a complete line of accessories, too. For an informative new catalog, write GEERPRES WRINGER, INC., P. O. BOX 658, MUSKEGON, MICH.

Surveying Instruments

177 The advantages of accuracy and economy have been combined in the DKMI Ten Second Theodolite for surveyors and city engineers. The instrument, complete with optical micrometer, presents readings automatically, at a glance, and can be used with an electric lighting unit for night work. It is described, along with other surveying instruments, in *Brochure DK 518-10,* from KERN INSTRUMENTS, INC., 120 GRAND ST., WHITE PLAINS, N. Y.

Remotely Records Level of Six Reservoirs

178 A new instrument, the Multi-Record Teletax Recorder, records the level of as many as six separate water reservoirs on one circular chart, eliminating the need for individual recorders. The instrument is easily installed at a central location where supervisors can conveniently check and compare the various reservoir levels. It is fully described in a new engineering data sheet, *AED 831-34,* from THE FOXBORO CO., FOXBORO, MASS.

Blades for Graders and Snow Plows

179 Increase the efficiency of municipal graders and snow plows with sturdy Bulldog blades. These economical grader blades are made of special plow steel for all types of snow plows and for scarifier teeth of any size. They are described and illustrated in literature from ALLIED STEEL & TRACTOR PRODUCTS, INC., 7835 BROADWAY, CLEVELAND 5, OHIO.

Fast Way to Spray Weeds and Insects

180 Installed on any municipal pickup truck or tractor, the Watson-Hypro pump kit enables the vehicle to be used for killing weeds and insects, spraying trees, and fighting fires. This detachable pumper with accessory pressure gage, relief valve and hoses, attaches to the truck in minutes. It provides pressures up to 350 pounds. For additional data, write H. S. WATSON CO., 1316 67TH ST., EMERYVILLE 8, CALIF.

(See p. 197 for more Bulletins)

By changing the character of hormones and genes science may increase tremendously the size of fowl and domestic animals . . . put more meat at less cost on the American table.

100 years from now...

WE MAY RAISE CHICKENS AS BIG AS OSTRICHES!

How will we live, eat, travel in the future? Even scientists must include some guesswork in their predictions of the marvelous things to come. But one thing seems certain—water and gas will still be carried by the dependable, long-lasting cast iron pipe laid today. Here's proof! More than sixty American cities are still being served by cast iron water and gas mains over a century old. And today's modernized U. S. Pipe...centrifugally cast, quality controlled . . . is even stronger, tougher, and more durable.

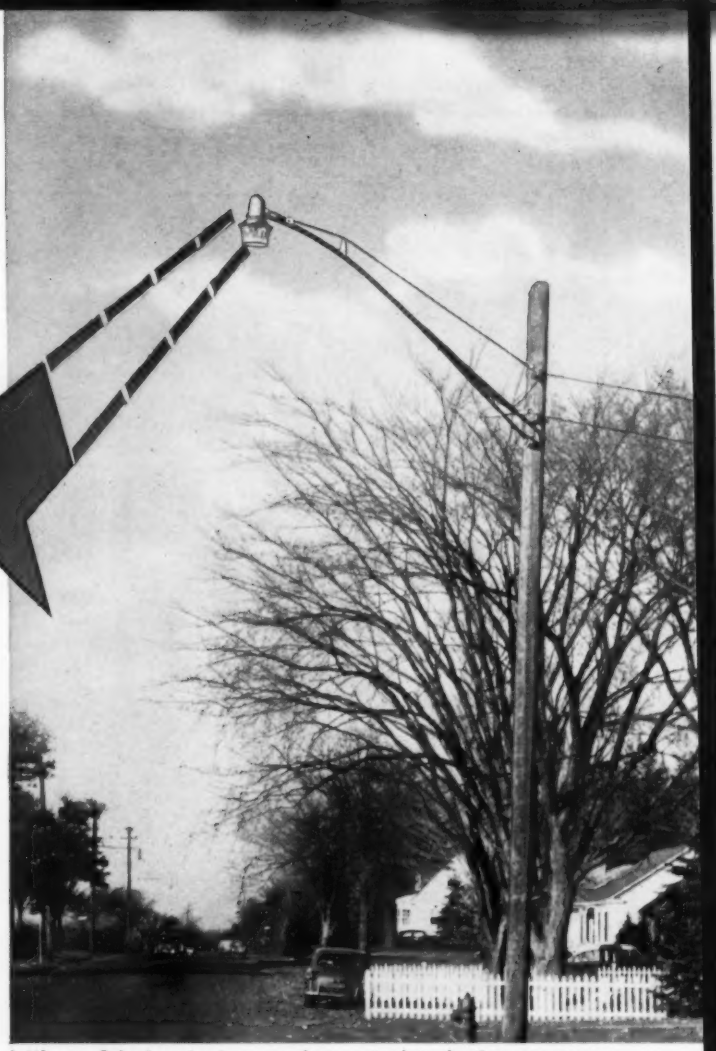
U. S. Pipe is proud to be one of the leaders in a forward-looking industry whose service to the world is measured in centuries.

U.S.
cast iron
PIPE
CAST IRON

U. S. PIPE AND FOUNDRY COMPANY, General Office: Birmingham 2, Alabama

A WHOLLY INTEGRATED PRODUCER FROM MINES AND BLAST FURNACES TO FINISHED PIPE.

Aluminum reflector can be latched directly to a standard NEMA head. Since the Suburbanaire is open at the bottom, the refractor does not need to be removed for relamping.



L-M's new Suburbanaire has a modern, up-to-date daytime appearance.

How L-M's Suburbanaire Improves Residential Lighting, Cuts Maintenance

L-M's new open-refractor Suburbanaire is an outstanding improvement in residential area luminaires. The open glassware provides for excellent cooling, larger lamps, and easy re-lamping. In addition, the Suburbanaire has a pleasing daytime appearance.

The Holophane® refractor glassware is available in type I, standard type II, type II 4-way offset, type III and type V light patterns. The unit offers greatly improved lighting over open luminaires often used for neighborhood streets.

Check These Outstanding Features

L-M's Suburbanaire Is More Efficient—

- Specially designed for long life, low wattage, and clear and color improved mercury vapor lamps including the new 100 watt (3300 lumens) and 175 watt (6800 lumens). Accommodates incandescent lamps up through 6000 lumens. Integrally mounted head and ballast assembly available for use with HG lamps.
- Provides more light at higher angles, making it adaptable to wider spacings which are typical in residential areas.
- Glare is at a minimum, even with high beam candlepower at a high angle, because of the large glass area, which provides a beacon effect with large light source. The light is developed from the entire refractor, not just from the area next to the reflector.
- Has high utilization of light output and improved efficiency.

L-M's Suburbanaire Cuts Maintenance Costs—

- Eliminates the problem of trapped dirt and condensation which collect in enclosed units.
- Relamping can be done without removing glassware. In many cases it can be done from the ground with a lamp stick.
- Alzak® aluminum reflector is latched for easy attachment to standard NEMA head. V-band permits field replacement of glassware when necessary.

Ask the L-M Field Engineer or Street Lighting Engineer for more information on features of L-M's Suburbanaire luminaire. Or write Line Material Company, Milwaukee 1, Wisconsin. In Canada: Canadian Line Materials, Ltd., Toronto 13, Ontario.

LINE MATERIAL
A McGRAW ELECTRIC COMPANY DIVISION
Street Lighting

267

When ordering lighting equipment, protect yourself. Insist on quality products that meet the exacting requirements of EEI-NEMA standards (Edison Electric Institute and National Electrical Manufacturers Assn.)

To THE AMERICAN CITY's Catalog Supply Department:

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 FOURTH AVENUE
NEW YORK 16, N. Y.

If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:
Please send literature on items numbered as follows, starting on Page 32.

99	107	115	123	131	139	147	155	163	171	179	187
100	108	116	124	132	140	148	156	164	172	180	188
101	109	117	125	133	141	149	157	165	173	181	189
102	110	118	126	134	142	150	158	166	174	182	190
103	111	119	127	135	143	151	159	167	175	183	191
104	112	120	128	136	144	152	160	168	176	184	192
105	113	121	129	137	145	153	161	169	177	185	
106	114	122	130	138	146	154	162	170	178	186	

I would also like to receive manufacturers' booklets on.....

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Name: (Please Print).....

Title:.....

Address:.....

..... 8-56

A Listing of Your Business Connection is Important

"We like the ability of the

This 4-wheel drive, 1⅛-yd excavator-load-

To THE AMERICAN CITY's Catalog Supply Department:

Please send me further information on products described in "Purchasing News" section beginning on page 199, as circled below:

780	785	790	795	800	805	810	815	820	825
781	786	791	796	801	806	811	816	821	826
782	787	792	797	802	807	812	817	822	827
783	788	793	798	803	808	813	818	823	828
784	789	794	799	804	809	814	819	824	829

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A Listing of Your Business Connection is Important

You can obtain manufacturers' literature by making use of these convenient Business Reply Cards!

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Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

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FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

ONE OF THESE REPLY CARDS WILL BRING FULL DETAILS FAST ON ANY PRODUCT OR SERVICE MENTIONED OR ADVERTISED IN THIS ISSUE

"We like the ability of the TRACTOMOTIVE TL-12 TRACTO LOADER to go Quickly from one phase of our job to another"

says Mr. Bruce Bird, superintendent of T. F. Scholes, Inc. — contractor on Little Rock Air Force Base job, Jacksonville, Arkansas.

This 4-wheel drive, 1⅛-yd excavator-loader went on the job last September to demonstrate its ability to handle a variety of jobs with equal efficiency. It proved it could more than earn its own way — so it stayed!

Up to the time these pictures were taken — latter part of February — the TL-12 had 800 hours of operation and no downtime from any mechanical failures.

Once you watch this rugged, all-round loader perform on your job, you too will see its many profit-making possibilities. Choice of diesel or gasoline engine. Various interchangeable attachments.

PUTS LOADS INTO CENTER OF TRUCKS. Tires do not extend ahead of cowl to rob operator of valuable reach. No time wasted bulldozing to distribute load.

BACKFILLING GOES FAST WITH POWER STEERING AND CLUTCH-TYPE TRANSMISSION. No shifting — operator pulls or pushes a lever to go forward or reverse.

PICKS UP AND CARRIES 24" AND 36" SEWER PIPE WITHOUT ASSISTANCE — made possible with TIP-BACK BUCKET and proper manipulation of dump lever. Also grades ditch and lowers pipe into it.

HYDRAULIC TORQUE CONVERTER DRIVE SPEEDS PULLING WORK as well as loading. Moves smoothly, steadily ahead — no wheel spinning, no "digging in" in soft going.

SOLD AND SERVICED BY YOUR ALLIS-CHALMERS CONSTRUCTION MACHINERY DEALER

Send For Free Descriptive Catalog On The Complete Line Of Tracto-Loaders

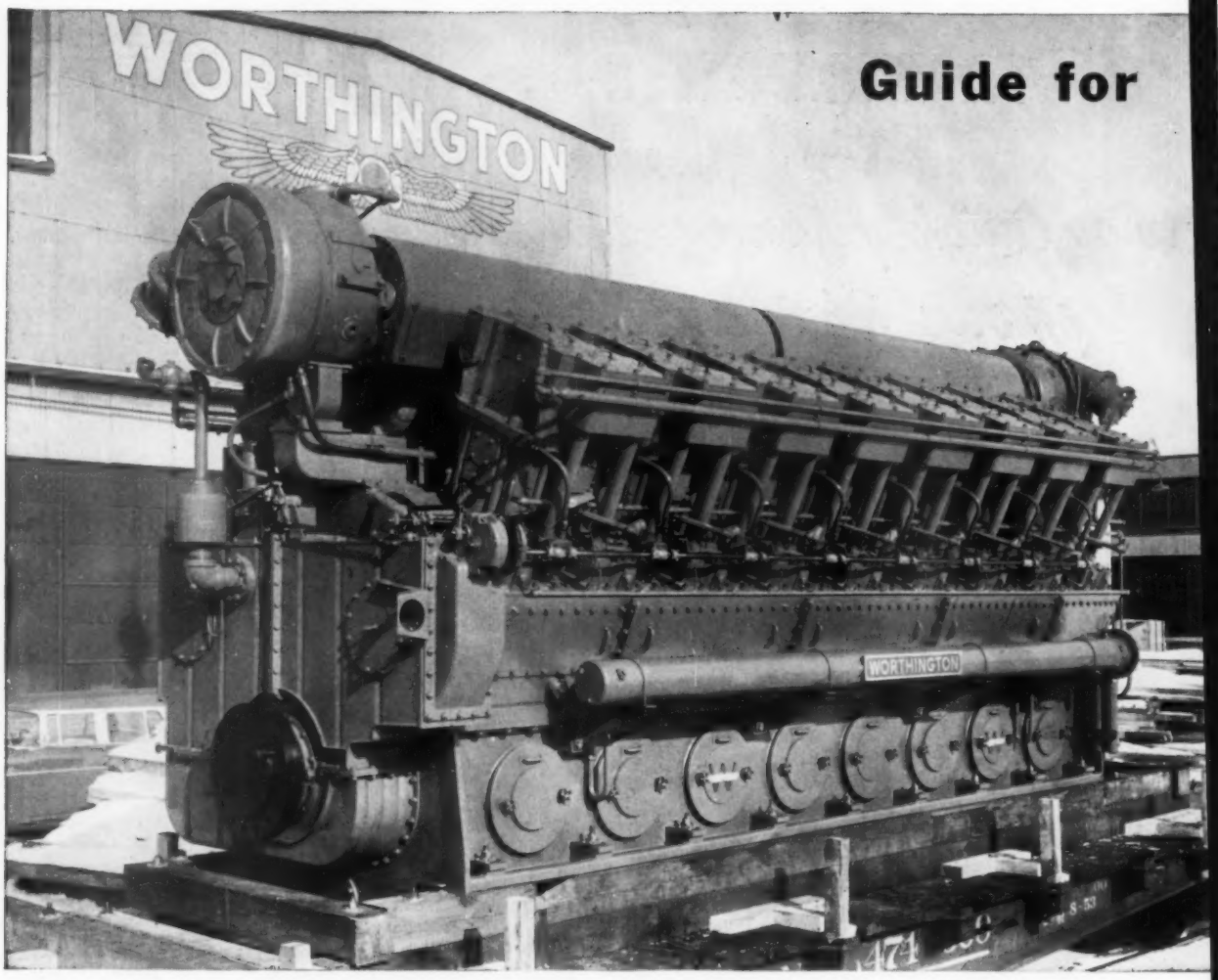
TRACTOMOTIVE

TRACTOMOTIVE CORPORATION • DEERFIELD, ILLINOIS

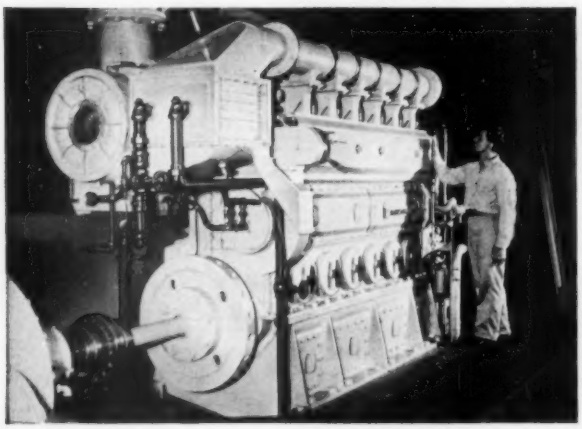
TRACTOMOTIVE CORPORATION, Dept. AC
Deerfield, Illinois

☐ Please send Tracto-Loader Catalog
☐ Have salesman call

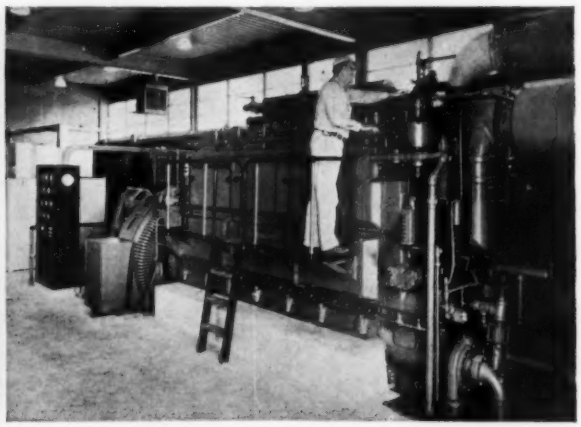
Name .....
Title .....
Company .....
Address .....
City ..... State .....



SW 14. Designed specifically for turbocharging, Worthington's SW 14 engine features compact and massive construction for low installation expense, plus high performance on the most economical fuels available. This is America's first engine structurally designed and built for high pressure turbocharged operation. Available in ratings from 1,500 to 5,000 hp.



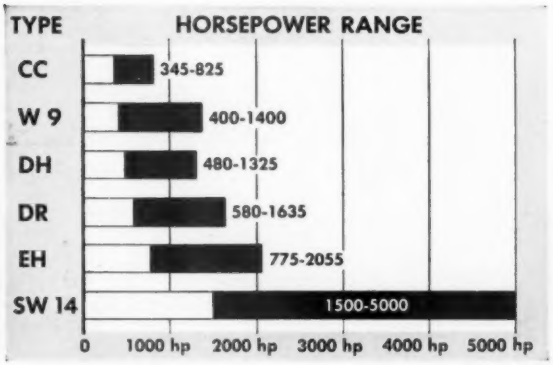
W 9. A medium speed engine of welded steel construction with a very low weight per horsepower ratio. Perfect for permanent power installations, it is easily adaptable for all portable applications such as rail cars, marine, drag lines, locomotives. Ratings from 400 to 1,400 hp.



DH. A modern medium speed engine suitable for permanent or semi-portable service. This unit has a long, successful field record with military, marine, industrial, and municipal applications. Ratings from 480 to 1,325 hp.

Planning Better Diesel Power Plants

Standard engines that fit your plant design are more reliable, have lower first cost, give economical continuous power.



Choose your next power engine from Worthington's complete line

Now, Worthington offers you one of the most complete lines of heavy-duty diesel engines in the industry. You can choose from seven different types to meet almost any application requirement. They're available in ratings from 345 to 5,000 hp and for either oil, gas, or dual-fuel operation.

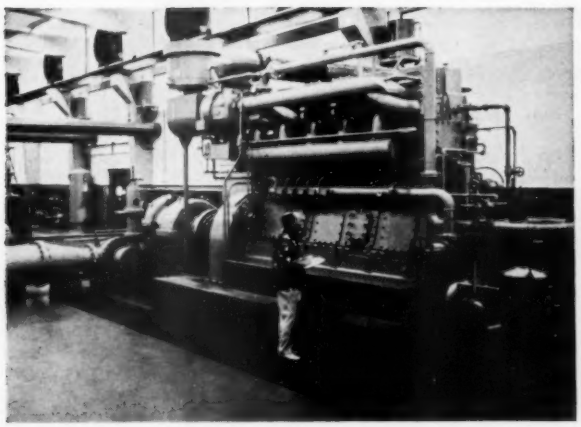
Hi-power performance with economy is yours with all Worthington diesels because each type has been engineered specially for its power range and service application. Such exclusive features as Dual Plunger Fuel Pumps, Automatic Thermal Air Control, Micro-metering Gas Valves and Self-aligning Exhaust Valve Seat Inserts make a Worthington diesel your best choice for long life and low maintenance.

Service is also a Worthington specialty. Experienced erectors will help supervise the installation of all Worthington engines. After your diesel is installed, complete service facilities stand behind it to assure you of continuous, economical power. If you should need replacement parts or repairs of any kind, you'll get fast action from the nationwide Worthington organization.

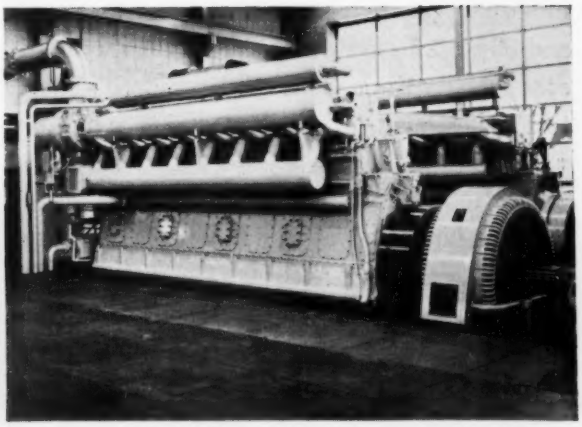
More than 3,000,000 hp of Worthington power engines are now serving industry in many different applications. If one of these engines is in your plant then you already know of Worthington's ability to combine outstanding performance with economy. If not, you'll want to get the full story from your nearest Worthington District Office. Or write to Section E62, Worthington Corporation, Harrison, N. J. In Canada: Worthington (Canada) 1955, Ltd., Toronto, Ont.

E.6.2

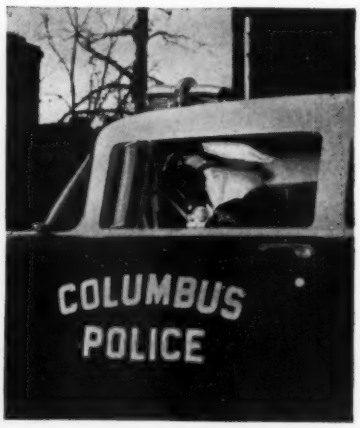
WORTHINGTON



DR. A low speed heavy-duty engine designed to operate on the lowest cost available fuels. Will give dependable service as an oil diesel, dual-fuel diesel, spark ignition engine, or on tri-power service. Ratings from 580 to 1,635 hp.



EH. A rugged engine for continuous, heavy-duty service. More than 500 type EH engines are in service in private, military, municipal, and utility power plants. In many of these installations, Worthington diesels are setting new records for continuous operation. Ratings from 775 to 2,055 hp.



New G-E Progress Line Radios Are Now Serving With Ohio's Capital City Force

COLUMBUS, OHIO POLICE SELECT NEW GENERAL ELECTRIC TWO-WAY RADIOS

The Division of Fire and Police Communications, City of Columbus, Ohio, is nerve center of a radio network linking more than three hundred vehicles. A combination of 250-watt and 60-watt base station transmitters, spotted conveniently throughout the city, speed signals to this fleet on a 24-hour basis.

Progress Line Dependability

Progress Line two-way radios are going on duty with cities all over America. General Electric Plug-in-Chassis design means faster servicing, interchangeable chassis permits switching of equipment between vehicles—even between 6 and 12-volt d.c. systems. Simultaneous monitoring of 2 channels from one radio and Tone Signal Calling are other Progress Line advantages.

2-WAY MOBILE RADIO
FREQUENCY STABILITY & SELECTIVITY guaranteed for life!

Investigate The New G-E Progress Line

Your G-E Communications Counselor can show you the advantages you get when you "go G.E." Call him in, or write to: *General Electric Company, Communication Equipment, Section X1086 Electronics Park, Syracuse, N.Y.*

Progress Is Our Most Important Product

GENERAL ELECTRIC

An Underwood Sundstrand Tax Billing Machine

...speeds tax billing...

and all your other accounting jobs, too!

The Underwood Sundstrand Tax Billing Machine gives you fast, all-around accounting on a single machine. You can switch *in seconds* from speedy, accurate Tax Billing to Collections, Delinquency Notices, Appropriations, Water Billing, Payroll, Accounts Payable—*any accounting job!*

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Better Community Recreation

with a **Koven** **ALL STEEL swimming pool**

10-YEAR Guarantee

SOS

Any Size or Design Pool Can Be Ordered

There's no question about the relationship between morale and recreation. They're inseparable. Where you find one you find the other.

The question is . . . how to achieve them in the first place?

Most people know . . . that the surest, safest, most tested means is an ALL Steel Swimming Pool by KOVEN . . . because ALL Steel Swimming Pools by KOVEN provide outstanding values in handsome functional design, in economical trouble-free performance. They serve better—last longer because of their leak-proof heavy welded steel construction—a construction which enables them to remain entirely free from weaknesses common to other types of pools, to operate dependably in severe climates, to require *as little* upkeep as an occasional coat of paint.

Do YOU know about KOVEN pools? You can easily find out (without obligation) by calling or writing for a FREE colorfully illustrated booklet or a consultation with a trained representative.

For any size or type pool you need, KOVEN, a leading steel fabricator for 75 years, will be glad to handle all details of design, construction, and installation.

THE POOL WITH THE LOWEST MAINTENANCE

- THE ONLY LEAK-PROOF TYPE BUILT
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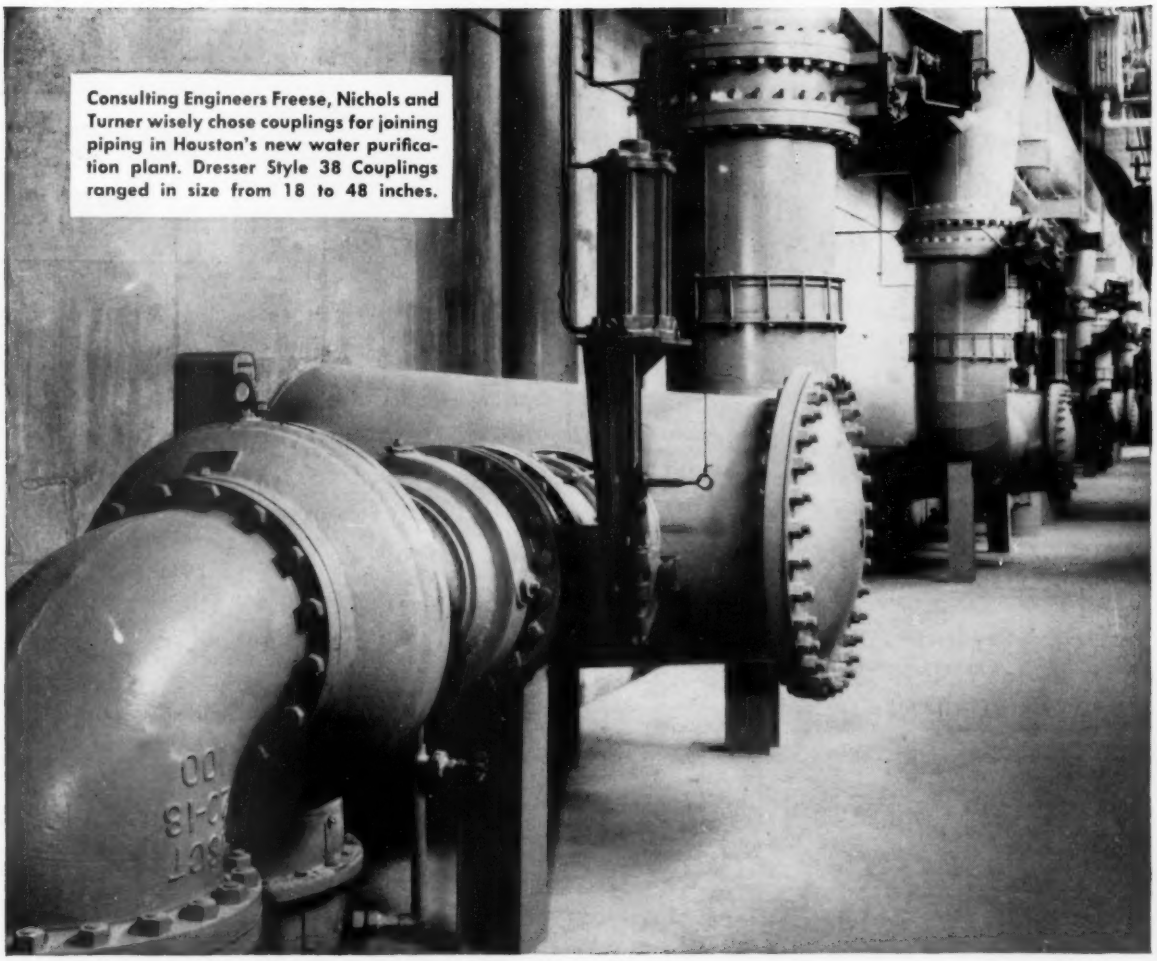
PLANTS: JERSEY CITY, N. J. • DOVER, N. J. • TRENTON, N. J.



Consulting Engineers Freese, Nichols and Turner wisely chose couplings for joining piping in Houston's new water purification plant. Dresser Style 38 Couplings ranged in size from 18 to 48 inches.

Houston solves piping problems for good

Steel pipe and Dresser Couplings provide flexible installation, easy accessibility

Houston's new water purification plant, a part of the San Jacinto River Water Project, integrates some of the latest developments in industrial design with time-proved principles of municipal water treatment.

The new plant reflects the wise use of steel pipe and mechanical couplings where weight, price and greater flexibility are important factors.

Consulting Engineers Freese, Nichols and Turner of Houston specified Dresser Couplings teamed with steel pipe "to provide for expansion and contraction of long runs of pipe, to provide for flexibility in the installation and possible future dismantling of large pipe assemblies, and to connect steel pipe to concrete hydraulic structures."

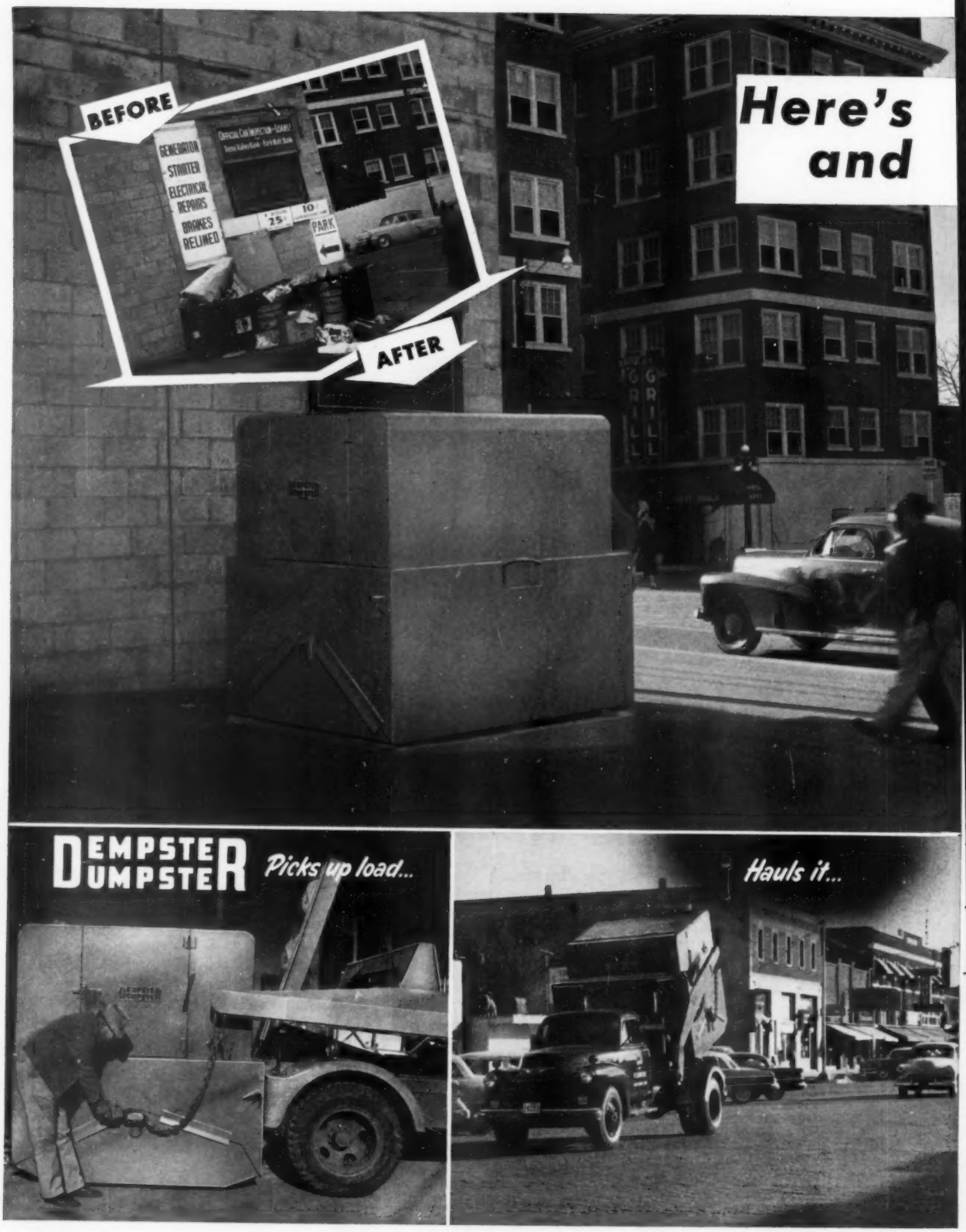
Whenever you join pipe — especially near valves or any type of mechanical installation — provide easier installation and permanence with safe, sure Dresser Couplings.

Regardless of vibration or expansion-contraction, the resilient gaskets in Dresser Couplings hold bottle-tight for life. This built-in flexibility, particularly important between rigid flanges, serves to prevent piping strain from reaching valve casings and working parts. Result: greater efficiency, longer life.

Installation with Dresser Couplings requires only a wrench, is fast and simple. You can forget time-consuming procedures because Dresser Couplings compensate for slight misalignments, facilitate installation of set, rigid equipment on piping. These couplings also permit easy entrance into lines for maintenance or repair of equipment.

No other method of pipe joining provides all these proved advantages. Make sure you have foolproof, leakproof Dresser Couplings on your next water, sewerage or industrial project. For complete information, call your local piping supply house or write Dresser Manufacturing Division, Bradford, Pa. Sales offices in: New York, Philadelphia, Chicago, S. San Francisco, Houston, Denver, Toronto and Calgary.

ONE OF THE DRESSER INDUSTRIES


BEFORE
GENERATOR
STARTER
ELECTRICAL
REPAIRS
BRAKES
RELINED
PARK
AFTER
Here's
and
DEMPSTER DUMPSTER
Picks up load...
Hauls it...

the solution to unsanitary costly bulk refuse collection...

...a simple, economical and nationally recognized solution to the problem of open cans, crates, etc, with overflowing loose refuse - - a costly potential in disease and fire hazards alone in damage to persons and property!

BIG STEEL DEMPSTER-DUMPSTER CONTAINERS—each equivalent to 75 ordinary trash cans—can be located at convenient bulk refuse accumulation points in your business areas . . . in housing and apartment areas . . . at schools, hospitals, etc. Scores of them—25, 30, 40, 50—served on pre-arranged schedule by only one man, the driver of your truck-mounted Dempster-Dumpster.

Invariably, wherever this system is installed, one finds immediate praise of an outstanding improvement from merchant users and citizens alike. Without question, the Dempster-Dumpster System is recognized as the most sanitary and lowest cost method of bulk refuse collection ever devised.

Without obligation on your part, our engineers will be glad to make a comprehensive fact-finding survey to determine the savings you can expect by the use of this amazing system. For instance, a year ago the system was installed at Borger, Texas "and has proven to be the answer to our trash and garbage problems in the business districts", writes City Manager Fritz Thompson. Now, it is being enlarged and Mr. Thompson confirms what our original survey pointed out that the Dempster-Dumpster equipment is being amortized out of labor savings alone in approximately four years. In nearby Plainview for another example, Mayor C. L. Abernethy tells us "We have found, as your original survey pointed out, that the labor savings alone will amortize the cost of the Dempster-Dumpster System within the first three years of its operation." Plainview has one Dempster-Dumpster serving 58 containers. Write us today! Dempster Brothers, Inc.

Dumps it...

HERE ARE A FEW OF THE SCORES OF CITIES, LARGE AND SMALL, USING THE DEMPSTER DUMPSTER® SYSTEM

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Baltimore
Davenport, Iowa
Henderson, Ky.
Jackson, Tenn.
Lakeland, Fla.
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Pampa, Texas
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Richmond, Va.
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New York City
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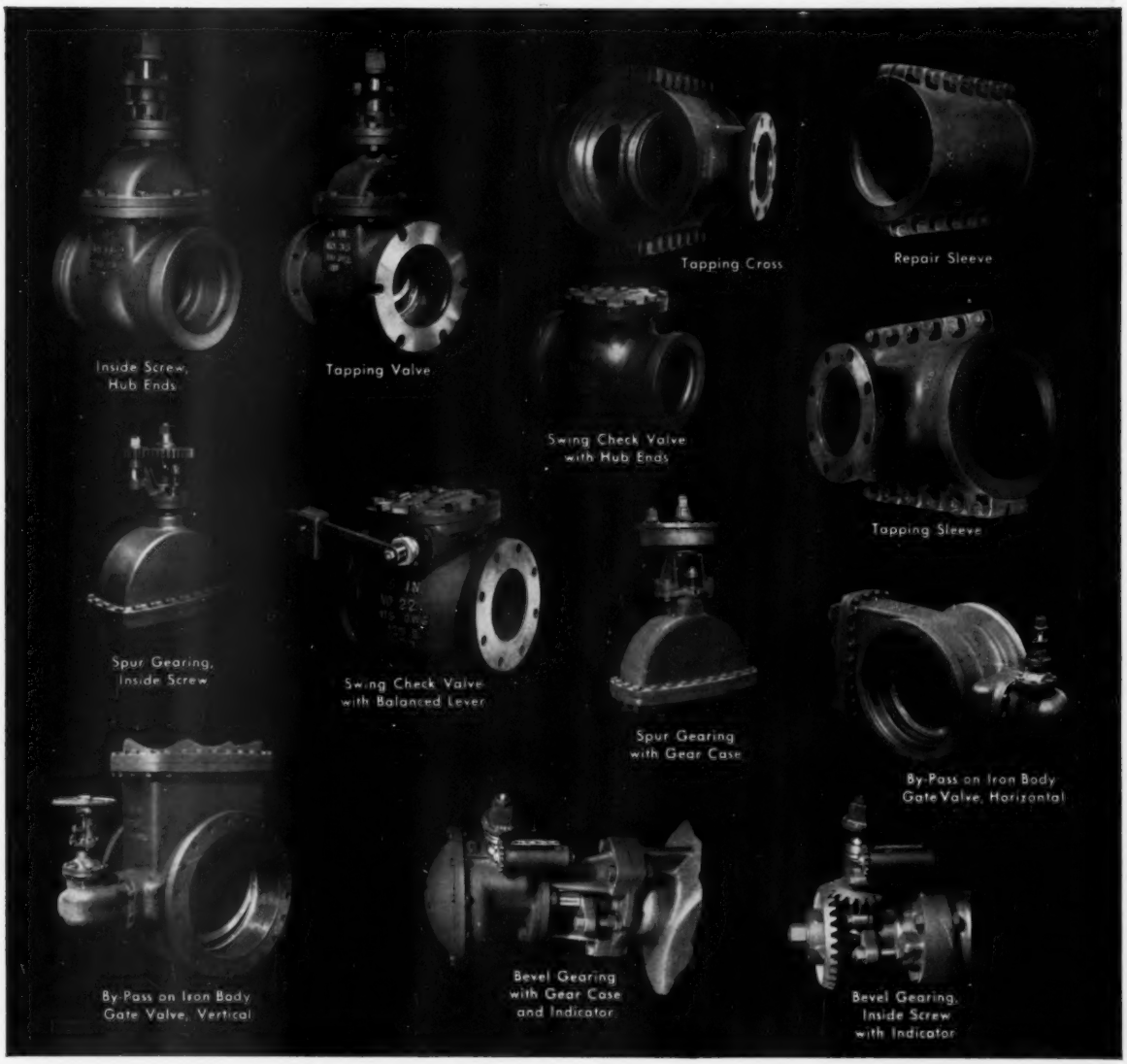
BROTHERS 886 Dempster Bldg., Knoxville 17, Tennessee

Fans get home faster in traffic directed by officers mounted on... HARLEY-DAVIDSON

CONFUSION after the game ends quickly when traffic is directed by Harley-Davidson mounted officers. And nothing gets officers to trouble spots faster than Harley-Davidson Solo machines! They cut through traffic, turn on a dime and squeeze through narrow openings . . . in short, they are the speediest means of law enforcement available.

Get the facts from your Harley-Davidson dealer today. He has your free copy of the illustrated booklet — "More Effective Police Power." Or write Harley-Davidson Motor Co., Milwaukee 1, Wis.


Inside Screw, Hub Ends
Tapping Valve
Tapping Cross
Repair Sleeve
Swing Check Valve with Hub Ends
Tapping Sleeve
Spur Gearing, Inside Screw
Swing Check Valve with Balanced Lever
Spur Gearing with Gear Case
By-Pass on Iron Body Gate Valve, Horizontal
By-Pass on Iron Body Gate Valve, Vertical
Bevel Gearing with Gear Case and Indicator
Bevel Gearing, Inside Screw with Indicator

DARLINGS . . . good for YOUR system

TRADE DARLING MARK

THIS composite picture gives you a rough idea of the broad range of Darling valves and allied products engineered for water distribution systems. What you cannot see here, naturally, is the unexcelled Darling quality—carefully controlled from Darling's own foundry all the way through final assembly and test. Nor can you "picture" performance advantages such as offered only by Darling's fully revolving double disc gate valve principle. For items such as shown here . . . and Darling's revolutionary B-50-B hydrants . . . it will pay you to check with Darling.

DARLING VALVE & MANUFACTURING CO.

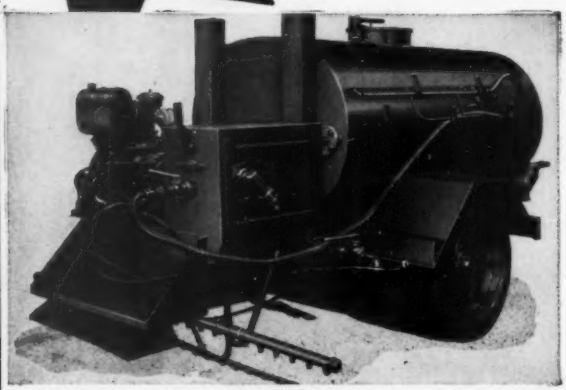
Williamsport 10, Pa.

Manufactured in Canada by The Canada Valve & Hydrant Co., Ltd., Brantford 7, Ont.

THE BIG THREE

A POWER PACKED PACKAGE

by Standard Steel Works Inc.



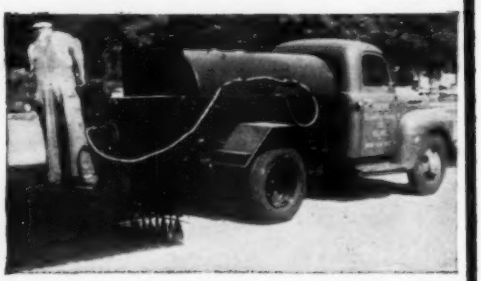
1 S. J. MAINTENANCE DISTRIBUTOR

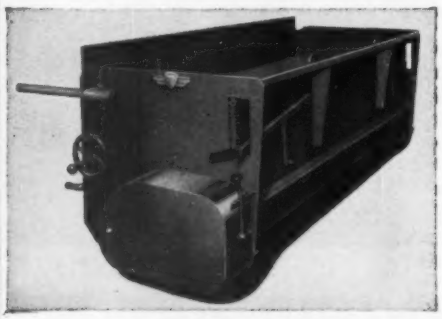
THE "BIG THREE PACKAGE" by Standard Steel Works is engineered to do the complete job of street and highway maintenance and for construction of parking, playground areas, drive ways, etc.

Standard Steel S-J Maintenance Distributor, designed specifically for jobs where the use of bigger equipment is costly and impractical, can be moved rapidly from one location to another for patching, shoulder repair or construction of secondary roads.

OPTIONAL FULL CIRCULATING SPRAY BAR PROVIDES FASTER HEATING AND MORE ACCURATE APPLICATION

Standard Steel S-J Maintenance Distributor is available in either trailer or truck mounted type . . . the trailer unit can be quickly converted to truck mounting by removing tongue and running gear. The pump and piping provide the following features: (1) Pumps from tank through spray bar (2) Pumps from tank to hand spray (3) Pumps from tank to outside source (4) Pumps from outside source to another outside source (5) Pumps from outside source into tank. Entire pump and piping as well as spray bar can be easily cleaned through its special suck back feature.





2 STANDARD STEEL GRAVEL SPREADER

Quickly hitches to supply truck—and it's on its way. The transmission is roller chain and sprocket driven. Forward, reverse and neutral are provided with automatic return to neutral in case of operating error. Gate adjustment levers at each end of box are indexed and errors in spreading are completely eliminated. Spreads anything from sand to 1½" rock uniformly and with simple setting of control lever. Full length roll, positive feed, heavy duty bearings.

WRITE TODAY for complete details on Standard Steel's "BIG THREE PACKAGE"

3 AND THE BRAND NEW MODEL 55 TANDEM ROLLER

Designed to provide two important advantages: (1) Adequate compaction for patch rolling requirements and (2) Ideal roll dimensions for smoothing and finishing work. Ballasting is evenly distributed through the use of both steel and water ballast. Steel ballast is removable in 70# sections providing a wide choice of compaction ranges.

The Model 55 will roll to within 2 inches of wall or building on driver's side. Constant mesh transmission eliminates gear shifting and foot clutching. Automotive steering makes easy driving. Upholstered seat, safety seat rail, speed control, throttle and foot brake are of motor-car type—and water valve is in easy reach of operator. The maximum weight with all ballast is 4600#. Shipping weight is 3600#. Speed—from 1.75 MPH to 3.5 MPH. The Model 55T Transport Trailer is also available.

Built to the Highest Standard

MANUFACTURED BY

Standard Steel Works, Inc. NORTH KANSAS CITY, MO

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Recording costs cut 6^{75} per estate
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Learn how your operations can be simplified in like manner with Recordak Microfilming and Verifax Copying. Chances are your investment in equipment (as little as $698) will be repaid many times over the very first year.

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Gentlemen: Please send further information on the use of the Recordak Microfilmer and Verifax Copier.

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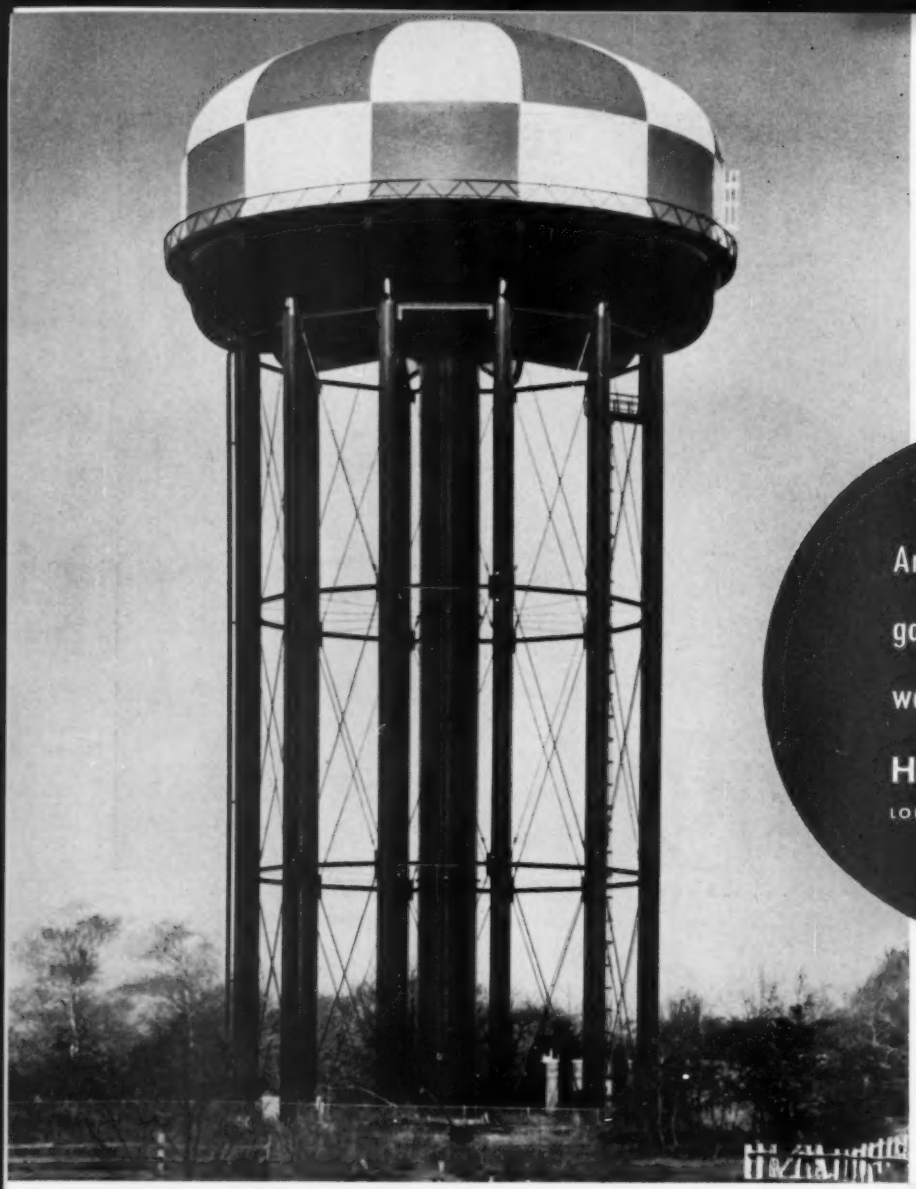

Another 1,500,000
gallons of "certain-sure"
water service for
HEMPSTEAD
LONG ISLAND, N. Y.

1951

Elevated Steel Tanks by

PITTSBURGH-DES MOINES

Latest of the many PDM Elevated Steel Tanks towering over Long Island's level terrain is this 1,500,000-gallon Radial Cone installation for Hempstead. 88 ft in diameter, the tank has a headrange of 35 ft and is on a tower 135 ft to bottom of capacity. Shown at right is an earlier million-gallon PDM tank of the same design, built for Hempstead in 1951.
● Write for our new Modern Water Storage Catalog.

PITTSBURGH • DES MOINES STEEL CO.
Plants at PITTSBURGH, DES MOINES, SANTA CLARA, FRESNO, and CADIZ, SPAIN

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CHICAGO (3), 1216 First National Bank Bldg.
LOS ANGELES (48) . . . 6399 Wilshire Blvd.
DES MOINES (8) . . 913 Tuttle Street
DALLAS (1) . . 1217 Praetorian Bldg.
SEATTLE . . . . . 520 Lane Street
SANTA CLARA, CAL., 619 Alviso Road
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PDM
ELEVATED STEEL TANKS

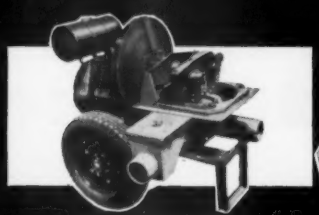
THE NATION'S No. 1 SOURCE

for dependable pipe line equipment

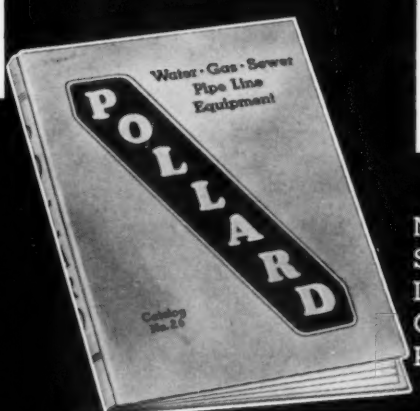
Like hundreds of Pollard customers, you'll find it mighty pleasant and convenient to order pipe line equipment from Pollard.

Here, under one roof and listed in one comprehensive catalog, are all the time and money saving products you need on the job. Each is guaranteed for dependability, economy. Each is backed by Pollard service.

JOINT RUNNERS



DIAPHRAGM PUMPS

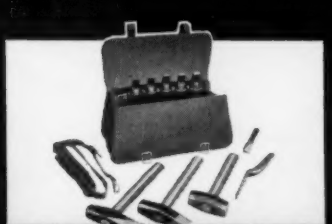


MANHOLE CUSHION

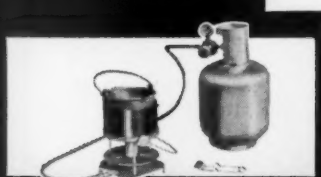
MAKE POLLARD YOUR SOURCE FOR PIPE LINE EQUIPMENT. ORDER FROM POLLARD CATALOG 26.

PIPE CUTTERS

M-SCOPE PIPE FINDER



CALKING TOOLS



MELTING FURNACE

PIPE LINE EQUIPMENT

JOSEPH G. POLLARD CO., INC.

PIPE LINE EQUIPMENT

PIPE LINE EQUIPMENT

Place your next order with POLLARD

If it's from POLLARD . . . it's the Best in Pipe Line Equipment

NEW HYDE PARK • NEW YORK

Branch Offices: 1064 Peoples Gas Building, Chicago, Illinois
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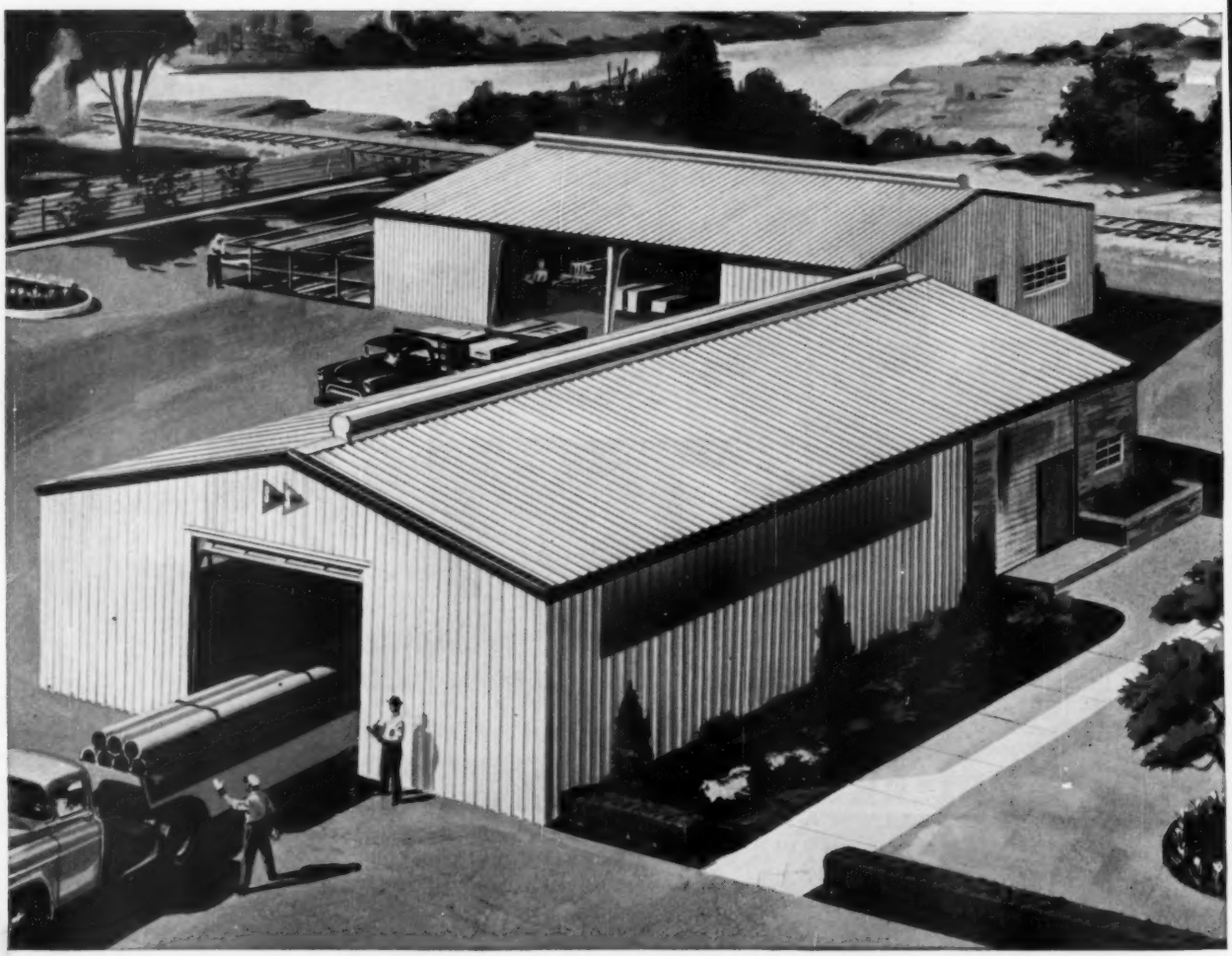
Get...

Rugged Clear-Span Design

Luxury-Look of **Stran-Satin**

with new

Stran-Steel Rigid Frame



Stran-Steel Corporation, Ecorse, Detroit 29, Michigan

Please send me the New Stran-Steel Buildings Catalog. ☐

Please have your representative contact me. ☐

Name_____

Company_____

Street_____

City_____ Zone____ State_____

56-SS-45A

Building Line

New Stran-Steel Rigid Frame buildings have the look of quality never before achieved in an all-steel building. However, quality doesn't stop with appearance. It is built right into every part of the structure.

Start with the smart *Stran-Satin* exterior finish. *Stran-Satin* metal wall, exclusive with Stran-Steel, provides a strong, durable panel with the weather resistance of zinc-coated steel and the smooth spangle-free look of far more expensive materials. Peaks, gables and eaves are completely enclosed with a weather-tight, roll-formed steel fascia flashing easily installed with self-tapping screws.

Under this smart appearance is a rugged, steel structure. At the peak and knee, the continuously welded Rigid Frame I-section steel plate beams are securely bolted together. The frame is designed to put these assembly bolts primarily in shear rather than tension. At the foundation, each Rigid Frame column is permanently bolted directly to the foundation with U-shaped anchor bolts.

Stran-Steel Rigid Frame buildings are clear-span structures available in widths of 40, 50, 60, 70, and 80 ft. and multiples thereof. These buildings can be site-styled to individual requirements because they are built in 20-foot bays.

Unlimited design possibilities make these versatile buildings ideal for warehouses, processing plants, factories, retail operations or as service centers. Fast, accurate assembly is made possible by precision punching and die forming. You get the cost-saving features of a pre-engineered structure in a quality building which is durable, fire-safe, easy to insulate and heat.

For complete engineering details, call your local Stran-Steel building dealer or send for the new catalog.

Sturdy frame construction—Exclusive Stran-Steel tapered design puts maximum strength where it is needed most. Columns and rafters are tapered for proper distribution of stress. All structural elements are shop punched for rapid bolting assembly.

Strong foundation—Rigid Frame columns are bolted directly into the foundation with ¾" diameter U-type anchor bolts embedded 10 inches into the concrete.

Stran-Steel

STRAN-STEEL CORPORATION

Ecorse, Detroit 29, Michigan • A Unit of

NATIONAL STEEL CORPORATION

Here is where to obtain Engineering Service:

Atlanta 3, Ga., 206 Volunteer Bldg. • Cleveland 15, Ohio, 20950 Center Ridge Rd. • Detroit 29, Mich., Tecumseh Rd., Ecorse • Houston 5, Texas, 2444 Times Blvd. • Minneapolis 4, Minn., 708 S. 10th St. • Kansas City 16, Mo., 1322 Burlington • San Francisco 4, Calif., 235 Montgomery St. • Washington 6, D. C., 1200 12th St., N.W.

Six-year record shows Alcoa® Aluminum doubles sign life in Charlotte, N. C.

HERMAN HOOSE, Traffic Engineer, Charlotte, N. C.

In Charlotte, N. C., Traffic Engineer Herman Hoose has already put 8,550 signs of Alcoa Aluminum into service and is gradually replacing the last 450 made of steel. He spells out his reasons in dollars and cents.

Starting in 1950, records prove that rugged, corrosion-resistant Alcoa Aluminum makes signs last at least twice as long; twice the life means significant savings. Fabrication is cheaper because sign backs need no painting. Handling is easier because aluminum weighs less than half as much as steel. Finally, collision damage is repaired inexpensively by simply flattening signs to their original shape without stripping or refinishing.

Thirteen leading sign manufacturers are ready to help you cut costs as sharply as Charlotte has by supplying finished signs of Alcoa Aluminum—all ready to erect. Call the one nearest you, or write: Aluminum Company of America, 1680-H Alcoa Bldg., Pittsburgh 19, Pa.

Fasten Aluminum With Alcoa Aluminum Fasteners

THE ALCOA HOUR
TELEVISION'S FINEST LIVE DRAMA
ALTERNATE SUNDAY EVENINGS

WE CHOSE ALCOA® ALUMINUM MILL PRODUCTS
ALUMINUM COMPANY OF AMERICA
ALCOA

Your Guide to the Best in Aluminum Value

These manufacturers sell finished signs of Alcoa Aluminum

AGA Division
Elastic Stop Nut Corporation of America
1030 Newark Avenue
Elizabeth, New Jersey

California Metal Enameling Co.
6904 East Slauson Avenue
Los Angeles 22, California

Cataphote Corporation
2505 Albion Street
Toledo 10, Ohio

Gopher Stamp & Die Co.
78 Chicago Avenue, E.
St. Paul, Minnesota

The Grote Manufacturing Co., Inc.
500 Lafayette Avenue
Bellevue, Kentucky

The Hunt Company
18308 James Couzens Hwy.
Detroit 35, Michigan

Lyle Signs, Inc.
2720 University Ave., S. E.
Minneapolis 14, Minnesota

Minnesota Mining & Manufacturing Co.
900 Fauquier Avenue
St. Paul, Minnesota

Mulholland-Harper Co.
5820 Tacony St.
Philadelphia, Pa.

National Safety Engineers, Inc.
3910 First Ave., South
Birmingham, Alabama

Standard Sign & Signal Co.
470 Main Street
Clinton, Massachusetts

Traffic & Street Sign Company
80 Foundry Street
Newark, New Jersey

Zumar Industries
1608 Essex Street
Los Angeles 28, California

Is *Water shortage* endangering the future of your community?

Badger Water Meters conserve present supplies by giving an exact accounting of usage and waste

Caught in a two-way squeeze between fast-growing population and booming industry, many communities suddenly find themselves with outmoded water facilities. The time to act is NOW if declining water supplies threaten the future of your community. Metering *all* water is the first logical step toward conserving present supplies . . . recording *where* and *how much* is used. Fair rates for all help keep water departments *self-supporting*. Safeguard tomorrow's water needs TODAY.

• For complete information on how metering can insure the future of your community, contact your Badger Meter salesman or write us direct:

Badger Water Meters

Water is Vital

Badger Meters have conserved i for 50 years

BADGER METER MFG. CO., MILWAUKEE 45, WISCONSIN

PIPELINE News from L·O·F GLASS FIBERS COMPANY

BLUE FLAG PROTECTS TIDELANDS WATERLINE!

The ground was so wet that water had to be pumped constantly from the ditch by the well point system shown here. ▶

City engineers of Anacortes, Washington, were faced with the problem of laying over 24,000 feet of large-diameter water pipeline—most of it through wet and muddy tidelands, an extremely corrosive environment!

To assure complete protection, Engineers Carey and Kramer specified L·O·F Glass Fibers' Blue Flag reinforcing inner wrap for the pipe, which was wrapped by American Pipe and Construction Co., Portland, Oregon.

Blue Flag pipe wrap is made of special inert glass, which resists the action of soil chemicals. The strong, uniformly porous mat acts to give you pipe with:

- increased enamel strength
- high resistance to cracking and backfill damage
- improved enamel distribution with far fewer "holidays"
- years more service life

... all this for less than ½% of your original pipeline investment. Be sure to specify Blue Flag for your over-the-ditch or yard-wrapped pipe. It's available from strategically located distributor warehouses. For full details, write: L·O·F Glass Fibers Company, Dept. 85-86, 1810 Madison Avenue, Toledo 1, Ohio.

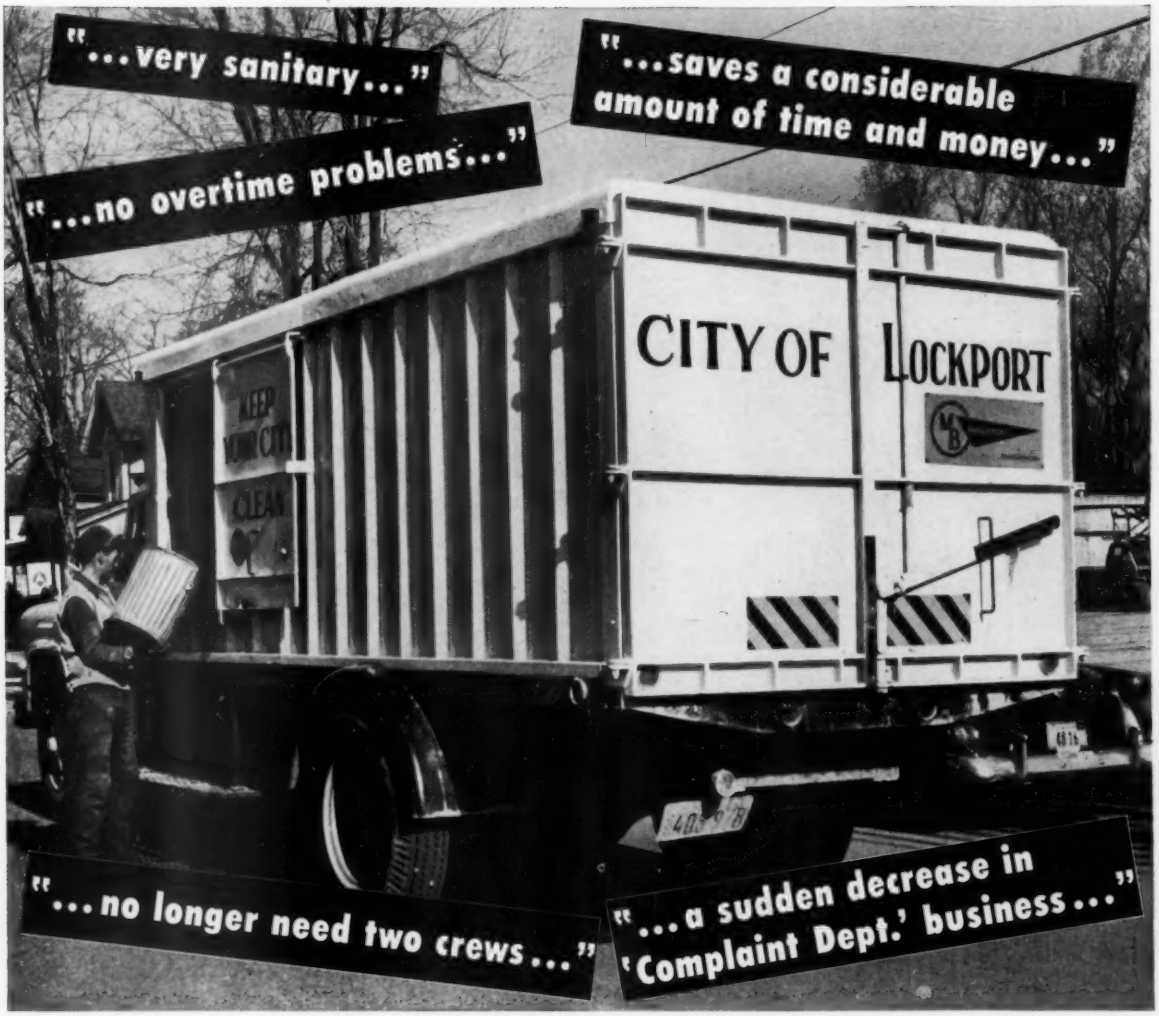
LOF GLASS FIBERS
BLUE FLAG PIPE WRAP

L·O·F GLASS FIBERS COMPANY

TOLEDO 1, OHIO

Makers of glass fibers by the "Electronic-Extrusion" process

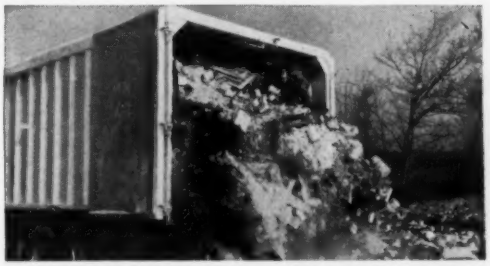
A Complete Line for Pipeline Protection: BLUE FLAG Reinforcing Pipe Wrap • **DURAMAT** Protective Outer Wrap • **DURAMESH** Pipeline Fabric • **DURATAPE** Pipeline Joint Wrap


"...very sanitary..."
"...saves a considerable amount of time and money..."
"...no overtime problems..."
CITY OF LOCKPORT
"...no longer need two crews..."
"...a sudden decrease in 'Complaint Dept.' business..."

LOCKPORT, N. Y. SAVES TIME AND MONEY WITH 16 Cu. Yd. M-B PACKER BODY

Superintendent of Streets Ralph C. Loomis reports:

"The purchase of the M-B Packer unit made it possible for the City of Lockport, New York to save a considerable amount of time and money. The route that this unit travels on is about 20 miles long. There are 895 stops along this route. In the past, before we had the M-B unit, it took two trucks and crews to service the homes along this route. Now, since we have put the new unit to work, we have taken one truck and crew from this route and are ahead of schedule on our street patching program. Thanks to the M-B Packer unit, we no longer need two crews for this route or do we experience any overtime problems. There is one more thing that I would like to bring out. The closed body of the unit cuts down the dust one hundred per cent and makes things very sanitary for the employees that work with this truck. Needless to say, the 'Complaint Department' has noticed a sudden decrease in business."

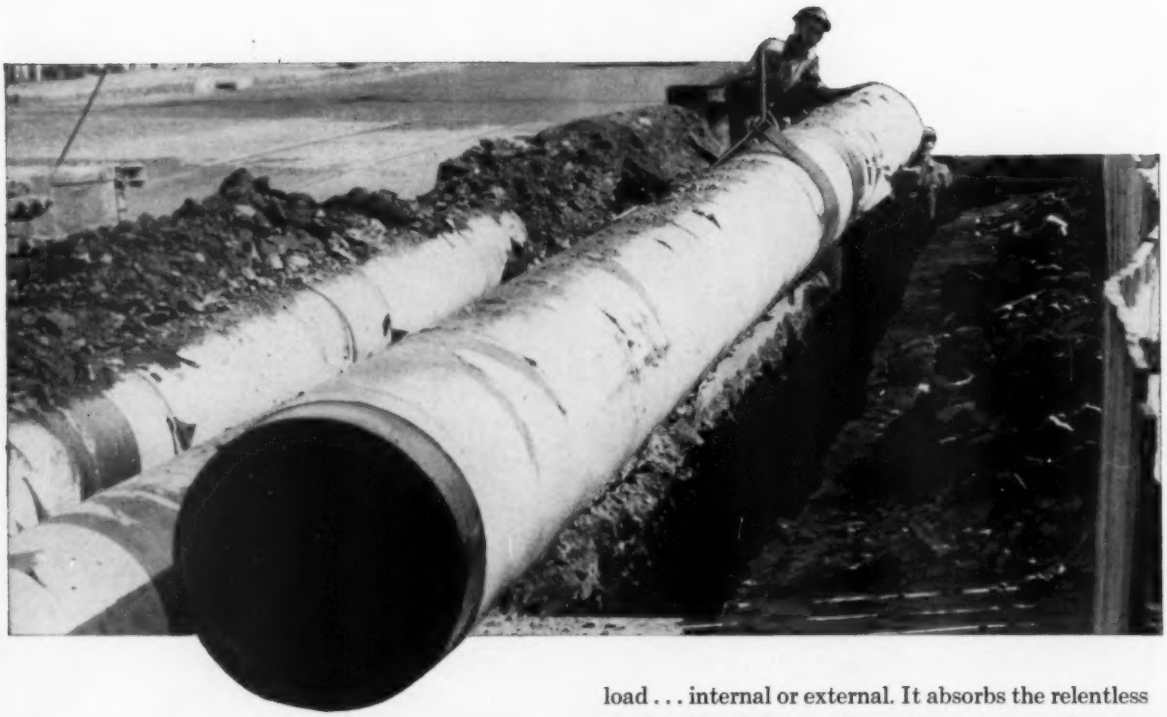


In big cities and small . . . all over the country . . . sanitation experts like Mr. Loomis have been praising the speed, simplicity and safety of M-B Packer Bodies. You can have fast, efficient refuse collection like Lockport, N. Y., and at amazingly low cost. Investigate all of the many M-B Packer benefits. Call your M-B distributor for a comparison demonstration or write for full details and prices. M-B Corp. 1612 Wisconsin Ave., New Holstein, Wisc.

PACKER BODIES • LINE MARKERS • SWEEPERS • PAINTS AND BEADS
M-B CORPORATION
NEW HOLSTEIN, WIS.
MANUFACTURERS OF QUALITY MUNICIPAL AND CONSTRUCTION EQUIPMENT SINCE 1907

FIRST IN RELIABILITY...

the major requirement in today's water lines



ONCE SUPPLY LINES and water mains of National Seamless Steel Pipe are laid, they are good for many years of continuous service. They can be depended upon to withstand the punishing external forces prevalent today in America's cities and towns.

Why? Simply because of Seamless Pipe's high tensile strength, its greater toughness and ductility. National Seamless Steel Pipe is shatterproof. Its uniform wall strength eliminates sudden ruptures that can completely upset a town's water supply.

Steel pipe possesses the ability to "give" with a load . . . internal or external. It absorbs the relentless hammering of fluctuating water pressure and resists the punishing shock of heavy, high speed traffic. In addition, it has the beam strength necessary to withstand bending and deflection when, due to trench settlements and washouts, it is not supported for its full length.

Plan on putting the advantages of USS National Seamless Steel Pipe to use in your future installations. It is manufactured to A.W.W.A. specification requirements, and is approved by Underwriters' Laboratories, Inc. Protective coatings are available for various service conditions.

SEE The United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

NATIONAL TUBE DIVISION, UNITED STATES STEEL CORPORATION, PITTSBURGH, PA.

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS

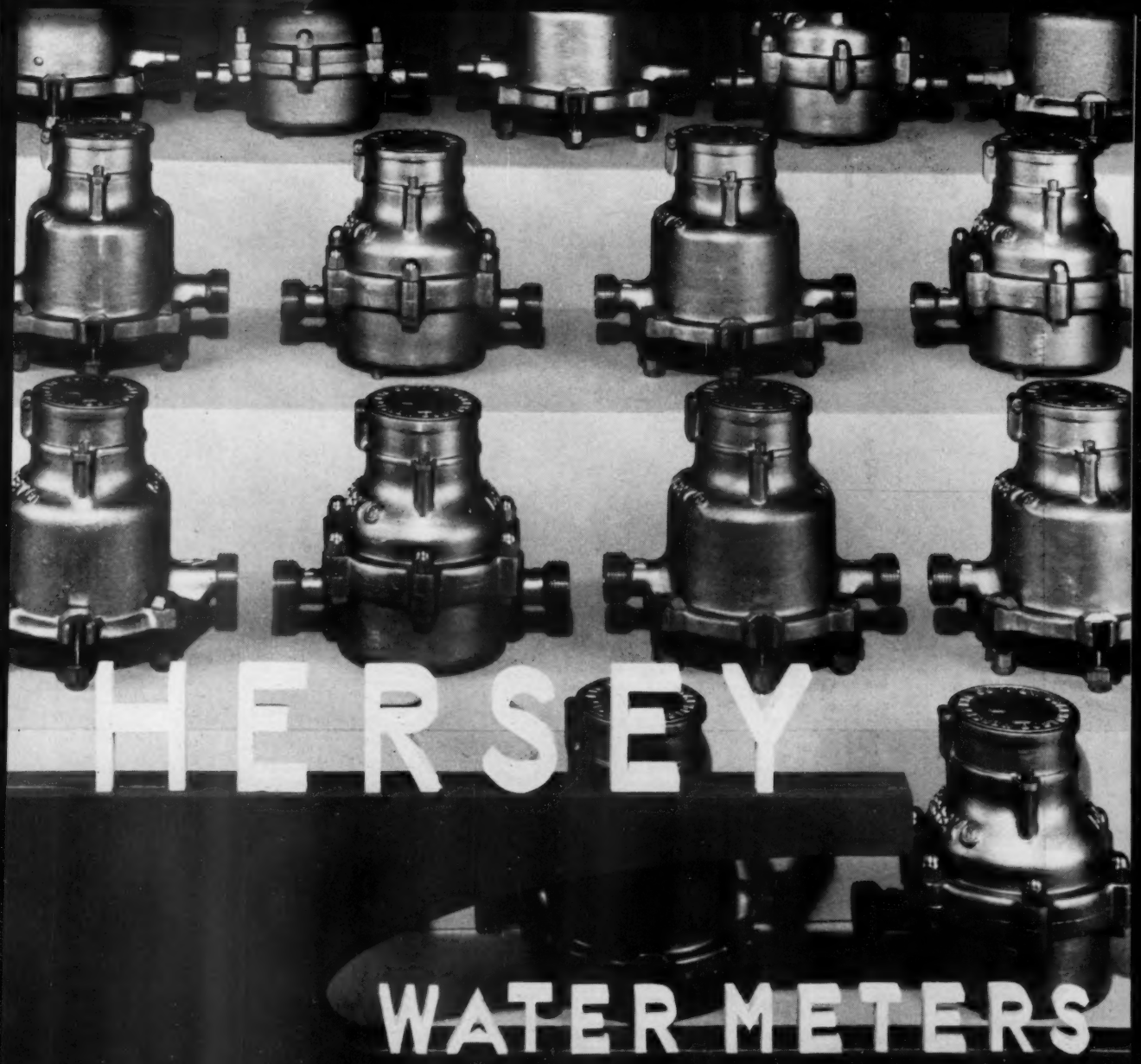
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

NATIONAL *Seamless* STEEL PIPE

SEAMLESS WITHOUT WELDS

UNITED STATES STEEL



The constantly increasing demand for

HERSEY WATER METERS

clearly demonstrates that they meet the exacting requirements of experienced water works engineers who are primarily interested in low maintenance costs and trouble free accurate registration.

It's the life of a meter that counts — not the cost.

HERSEY MANUFACTURING COMPANY

SOUTH BOSTON, MASS.

BRANCH OFFICES: NEW YORK — PORTLAND, ORE. — PHILADELPHIA — ATLANTA — DALLAS — CHICAGO
SAN FRANCISCO — LOS ANGELES

This new line truck in service for City of Columbus Division of Electricity is Model 3020 White with hydraulic pole frame for pole setting.

Only the WHITE 3000 Has All These Cab-Forward Design Advantages!

They Boost the Efficiency of Your Transportation Service First Day on the Job

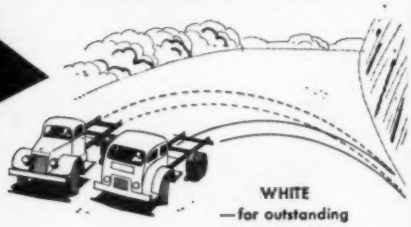
WHITE 3000 is not only the most modern looking truck in utility transportation service—it is the most efficient! Its every functional feature is designed for more work . . . lower cost . . . and time savings.

Find out how many ways the White 3000 with the power-lift cab fits into your business needs.

THE WHITE MOTOR COMPANY
Cleveland 1, Ohio

FIRST—IN THE FIELD
White 3000
PROVED IN BILLIONS OF LOW-COST MILES

For More Than 55 Years The Greatest Name In Trucks



WHITE
—for outstanding maneuverability

WHITE cuts overall length—saves work time

WHITE
for roomiest cab

WHITE
improves visibility and safety

Southern Standard Building Code includes

BERMICO®

BITUMINIZED FIBRE PIPE

MUNICIPAL and other code authorities across the country have approved BERMICO Sewer Pipe. Now the Southern Building Code Congress of states from Virginia to Florida to Texas has added its stamp of approval for BERMICO in its Southern Standard Plumbing Code.

MODERN-MINDED code officials welcome the news . . . and are certifying this dependable, acid- and alkali-resistant bituminized fibre pipe. Made of tough cellulose fibres impregnated with coal-tar pitch, BERMICO is strong, root-proof, and gives lasting protection against pipe failure in sewer lines and drainage.

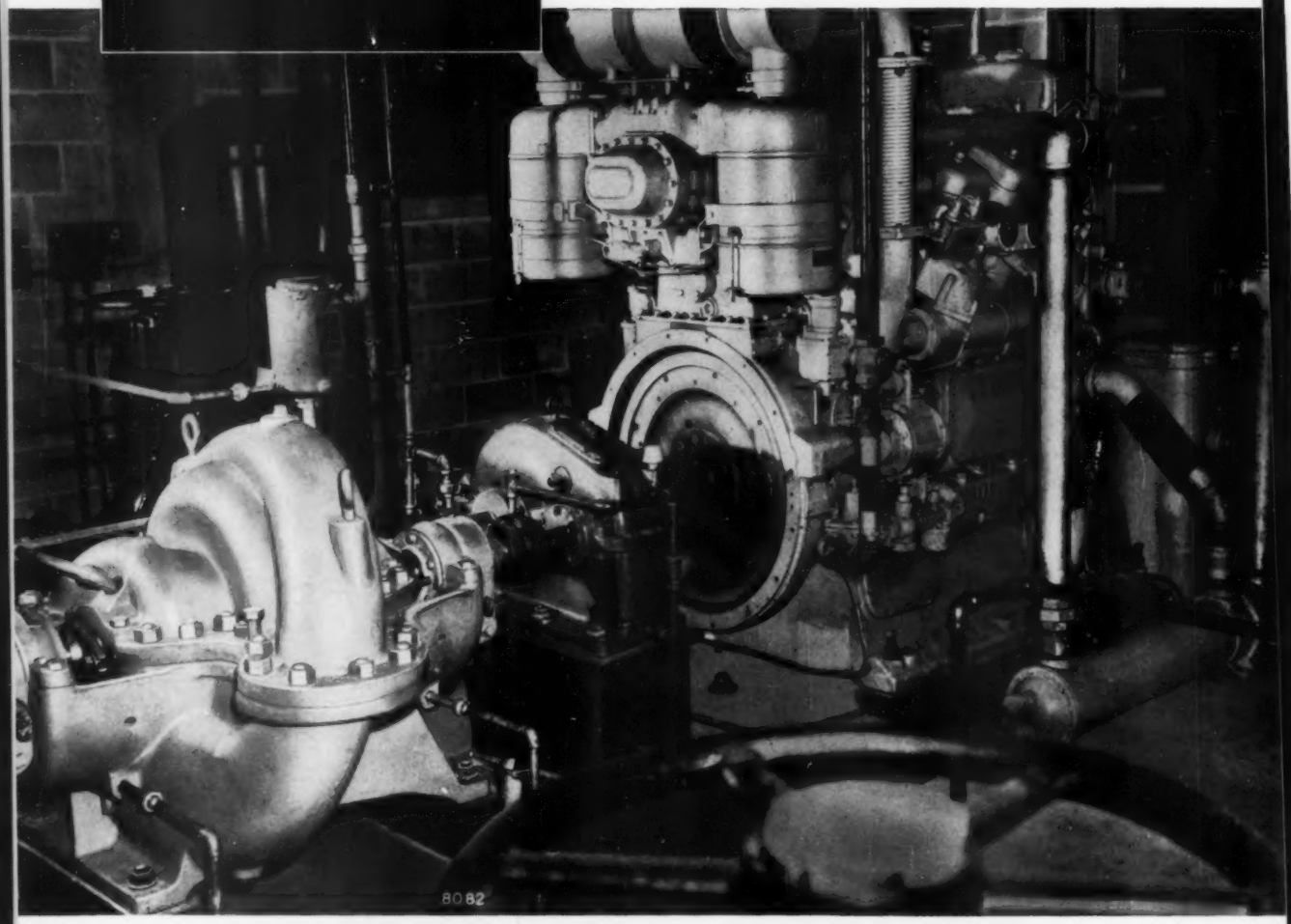
BERMICO comes in light-weight, 8-foot lengths for fast, easy installation. Only BERMICO has a complete line of bituminized fibre fittings, Wyes, Tees, Bends. You can't buy and install root-proof pipe for less.

Your community will thank you for modernizing your plumbing codes to include BERMICO . . . the Modern Pipe for Modern Living. For information, write Dept. TB-8, Brown Company, 150 Causeway Street, Boston 14, Mass.

BROWN COMPANY
150 Causeway Street, Boston 14, Mass.
Mills: Berlin and Gorham, N. H.

DE LAVAL
TWO-STAGE CENTRIFUGAL PUMPS

boost pressure at peak loads in Port Washington, New York



This De Laval two-stage horizontal split-case pump is one of a pair used to boost pressure during peak hours in the Port Washington, New York water works. Taking water from a large underground storage tank, these De Laval units maintain pressure throughout the system. The dependable centrifugal pumps are powered by Caterpillar diesels with speed increasers; they deliver 1500 gpm at 400 feet tdh with 15 feet lift requiring 185 bhp.

De Laval 2IS-2KS pumps are designed with • back-to-back impellers for balanced hydraulic thrust • easily replaceable threaded impeller wearing rings • long-life labyrinth case rings • ring-oiled ball bearings—plus ten other important design features. They are available in sizes from 2 inch to 8 inch discharge, for capacities to 3000 gpm and heads to 750 feet. *Write for Bulletin 1501 giving complete data.*

Consulting Engineer
Angus D. Henderson
Westbury, L. I., N. Y.

Contractor
D. Fortunato, Inc.
Floral Park, L. I., N. Y.

DE LAVAL *Centrifugal Pumps*

DE LAVAL STEAM TURBINE COMPANY
866 *Nottingham Way, Trenton 2, N. J.*

DL 387

SIMPLICITY A KEYNOTE

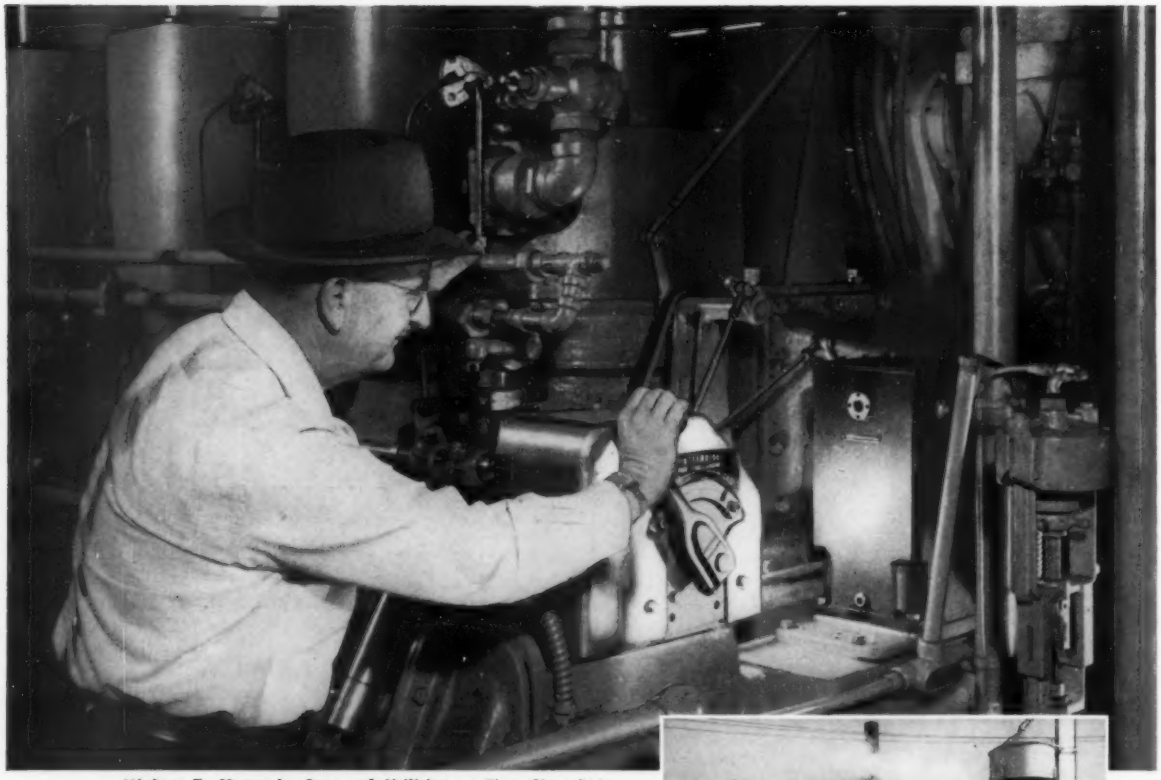
...the DUAL MANUAL way to save you trouble and expense!

PERHAPS anyone can make a simple parking meter. Maybe anyone can even make an efficient one. But to *combine* extreme simplicity with unsurpassed efficiency takes some doing . . . and that's just what Dual has done.

The new Dual Manual meter has been so well engineered that it offers positive easy operation, convertible timing and tamper-proof design with *only three* moving components!

But let us give you *complete* information . . . plenty of logic and proof that Duals are *your* best choice . . . manual *or* automatic. Write *The Dual Parking Meter Company* (Subsidiary of The Union Metal Manufacturing Co.), *Canton 2, Ohio.*

For extra value get **DUAL**
PARKING METERS



Walter T. Messeck, Supt. of Utilities at Tipp City, Ohio, sets Enterprise "Select-O-Matic" control for Dual Fuel operation.

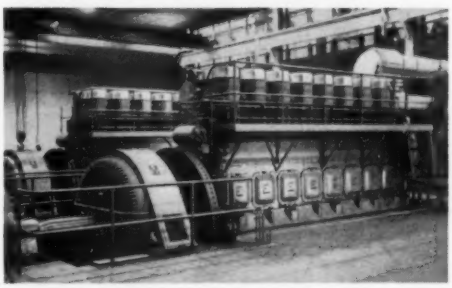
Dual Fuel? Heavy Fuel? Tipp City, Ohio, Profits From Both With Their Two Modern Enterprise Engines

As long as fuel prices fluctuate, and availability of different fuels varies, Enterprise "Select-O-Matic"® Dual Fuel engine systems contribute important savings in power production.

This is the case at Tipp City, Ohio, where they converted their Enterprise Engines from straight diesel operation just two years ago. Dual fuel operation on natural gas and No. 2 diesel pilot fuel is alternated on a seasonal basis, with straight diesel operation using either light or heavy fuel oils, depending on the current market price of the various grades of oil, during the winter months when gas is not available. Gas and heavy fuel operation is economical, and in this business the saving of as little as 1 mill per kilowatt hour amounts to a pretty penny when you're generating 9,488,200 KW hours a year as was the case at Tipp City in 1955.

Let us show you how Enterprise Dual Fuel economy can improve *your* operations. Write today for full information, or call your nearest Enterprise sales and service office.

The Tipp City Diesel Power Plant is a modern show place. Hundreds of visitors have inspected this efficient, well-run operation where two 1755 HP Enterprise Turbo-charged Engines supply all the power. Dual fuel and heavy fuel systems were installed in 1954, to take full advantage of the less expensive fuels available.



ENTERPRISE
dependable **ENGINES**

Over a million horsepower at work the world over!

ENTERPRISE ENGINE & MACHINERY CO.
Subsidiary of General Metals Corporation
18th and Florida Streets, San Francisco 10, California
Export Department, New York

Boston • Chicago • Denver • Des Moines • Fort Worth • Huntington • Jacksonville • Kansas City • Los Angeles • Minneapolis
New Orleans • New York • Philadelphia • Pittsburgh • San Diego • Seattle • St. Louis • Tulsa • Washington, D. C.

New York State Engineers build road in spite of slashed budget. Bitumuls with local aggregate is selected.

WHEN a drastic cut in appropriations forced the New York State Department of Public Works to reduce a project to a minimum expenditure, they turned to the proved method of Bitumuls-Native Aggregate construction. Based on the experience of several of the counties in the region, they knew this to be a sound method of stretching road-building dollars.

Rotary mixer and Bitumuls tank truck work in tandem to stabilize 4" lift of base aggregate.

The original plan

Airport construction at Riverhead, Long Island forced the relocation of the Wading River-Manor Road. As engineered by the State Department of Public Works, plans for this road originally called for two 24 ft. lanes for a length of approximately 6 miles. Financing, through the U.S. Bureau of Public Roads, struck a snag; and drastic economies were required to keep the job alive. In adjusting to the lower appropriation, it was decided to reduce the project to one 24 ft. lane, of a length allowable under the available monies.

New estimates indicated this would amount to approximately 3.16 miles, and invitations based on this distance were put out for bids. These specifications called for an 8 inch stabilized base, with 1" Asphaltic Concrete surfacing.

Job data

Local selected soil, sand, and gravel blended to meet the following dry sieve specifications were used for the stabilized base work on this job.

PERCENT BY WEIGHT PASSING		
Sieve	Specification	Aggregate Used
1 ½" Sieve	100	100
1" Sieve	90-100	84.5
¾" Sieve	60-80	78.3
¼" Sieve	30-50	64.2
#10 Mesh	20-40	50.5
#40 Mesh	10-30	10.9
#80 Mesh	7-8	5.6
#200 Mesh	5-15	3.8
Emulsified Asphalt	5-7%	5.75%

The amount passing the 200 mesh was specified to be not more than one-half the amount passing the 40 mesh sieve.

Aggregate was blended at the pit, approximately five miles from the job site, tested, then trucked to, and spread on, the sub-base. Enough such material for the bottom four inches of the base course was brought in and spread. Bitumuls Emulsified Asphalt, mixing grade, was pumped directly from the transport truck into a Rotary type mixer. This first 4" base course was mixed, rolled, and cured. Aggregate was then brought in for the second 4" course and the process repeated.

Heavy rains encountered

During the construction of the base course, two separate hurricanes interrupted job-progress. Delay was held to a minimum because Bitumuls readily coats damp aggregate, and damage caused by the storm was restricted to exposed areas of the sub-base plus those areas of the stabilized base that were not cured.

Surface course construction

The 8" Bitumuls Stabilized Base was topped with 1" fine aggregate Asphaltic Concrete surface course. Spreading and compaction of this material was accomplished by conventional methods. The surface course was extended 1 ft. on either side of the 24 ft. pavement to provide a degree of shoulder stability. Upon final acceptance, the road was turned over to the town of Riverhead, New York, by the contractor.

Sound paving, with economy... Bitumuls Emulsified Asphalt used with local aggregate

ROAD-BUILDERS throughout the nation have come to recognize the value of Bitumuls® Emulsified Asphalt in holding the cost of road construction to the lowest possible level.

A major factor in this economy: *Bitumuls' compatibility with local or in-place aggregates, even though they be hydrophilic.* This eliminates costly transportation of imported materials.

Our Engineers, operating out of our nationwide network of offices, will gladly provide complete information on specific grades of Bitumuls for various types of pavement construction.

Bitumuls is used extensively for maintenance work, too. *Call our nearest office for complete details.*

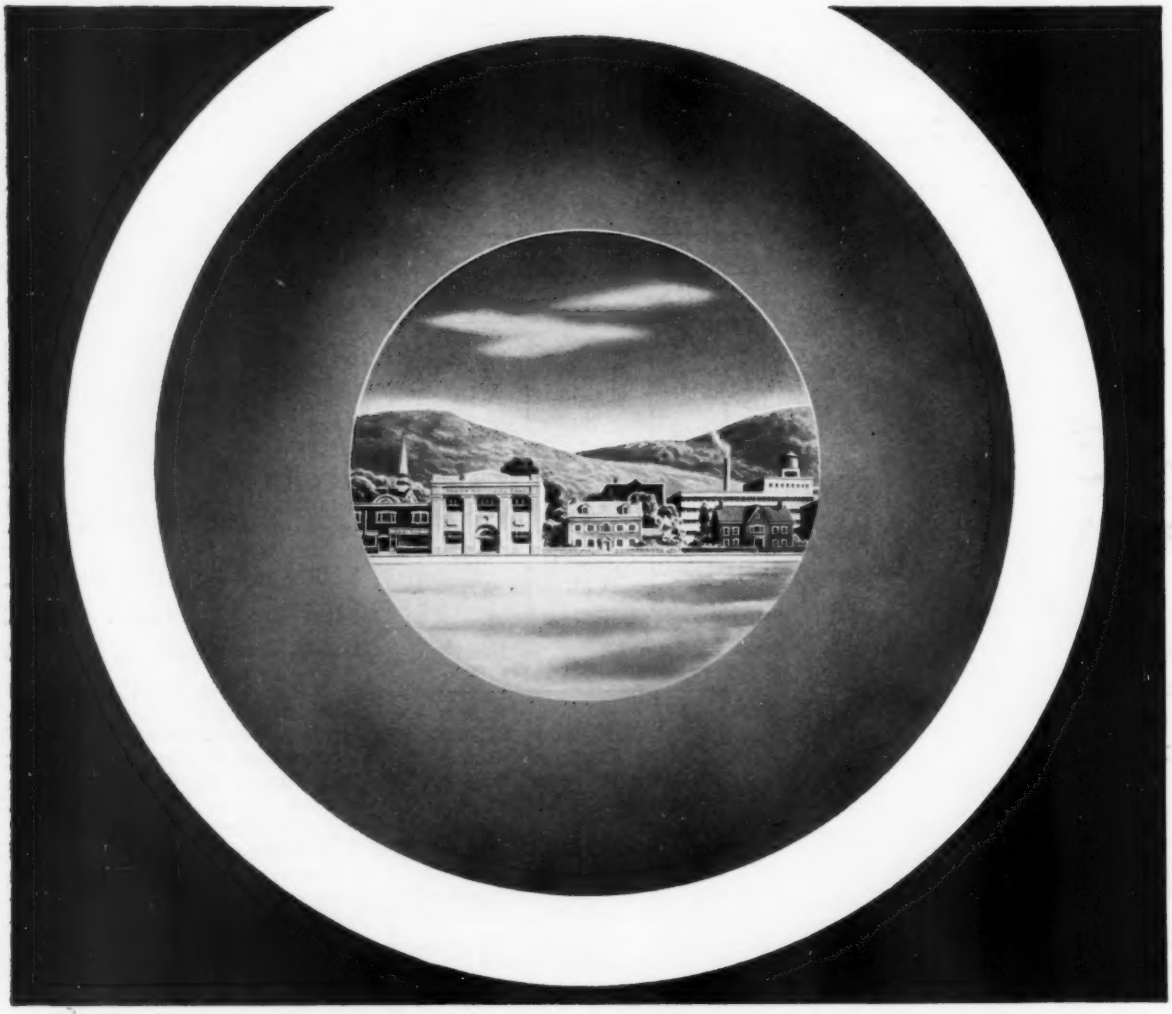
ABA

American Bitumuls & Asphalt Company

200 Bush Street, San Francisco 20, Calif.

St. Louis 17, Mo. — Cincinnati 38, Ohio
Tucson, Ariz. — Inglewood, Calif.
Perth Amboy, N. J. — Baltimore 3, Md.
Mobile, Ala. — San Juan 23, P. R.
Oakland 1, Calif. — Portland 7, Ore.

LEADING MARKETERS OF ASPHALTS, CUTBACKS AND BITUMULS—NATIONWIDE



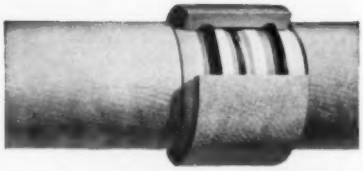
The pipe that's built for tomorrow

K&M "Century"® Asbestos-Cement Pressure Pipe slashes maintenance costs

Over the years, pumping costs are stabilized, maintenance is minimized with K&M "Century" Pressure Pipe. It is non-tuberculating, non-corrosive, non-electrolytic—its bore remains smooth and clean. "Century" Pipe is made of asbestos fiber and portland cement... two practically indestructible materials which assure long life.

And it's lower in initial cost, too! It's light in weight for easy, inexpensive transportation and handling, and even unskilled labor can lay it quickly in any kind of weather.

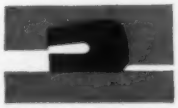
"Century" Pipe can save a community big tax dollars. Write for full information!



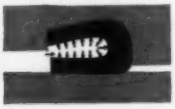
NEW K&M "FLUID-TITE"® COUPLING*

Crews can lay more pipe per hour in any kind of weather with K&M "Fluid-Tite" couplings.

**Patent applied for*



Rubber rings compress to allow easy, quick entrance for pipe.



Pressure expands rings. Higher pressure means tighter seal.

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

K&M Leaf in asbestos®

Set your sights on an Allis-Chalmers HD-6G

"Our new HD-6G saves man-hours . and speeds road construction."

Clyde Kilpatrick, Supervisor
District 2, Newton County, Mississippi

Versatility counts on county jobs. And in Newton County they're proving it with a new HD-6G tractor shovel. In its first two months on the job, the 6G dug pipe-line ditches, laid concrete pipe, cleared right-of-way and cut drainage ditches. The 6G also loaded sand and gravel on a State Aid road project.

On this job, it loaded a truck every three minutes, nine hours a day. No wonder Supervisor Kilpatrick says: "Our HD-6G does everything more specialized equipment can do." With its 1½-yd bucket and many interchangeable attachments, it stays busy—and busy equipment stretches budget dollars. And—as Mr. Kilpatrick says: "We're always sure of good service from our Allis-Chalmers dealer."

• • •

Yes, cost-conscious counties and townships get their budget's worth from the useful HD-6G. When you want equipment to lend a hand on out-of-the-ordinary jobs, you can count on the 6G. And here's why—the HD-6G represents the *most* advanced engineering in the tractor shovel business—not just in features but in *basic* design. That means plenty of *power*, superior *balance*, extra *strength* in all components, *weight* in the working parts and big safety factors . . . plus many exclusive on-the-job advantages important to owners and operators.

HD-6G tractor shovels are working in your area now. Check your Allis-Chalmers construction machinery dealer on where you can see one in action. And remember, your dealer is headquarters for factory-trained servicemen, factory-approved facilities and complete stocks of True Original Parts to keep your equipment operating right. See him soon.

HD-6G
1½-yd bucket
55 belt hp
19,600 lb

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

The Whole Construction Story wrapped up in one Gigantic Package!

A.R.B.A. ROAD SHOW and CONVENTION

International Amphitheatre—Chicago

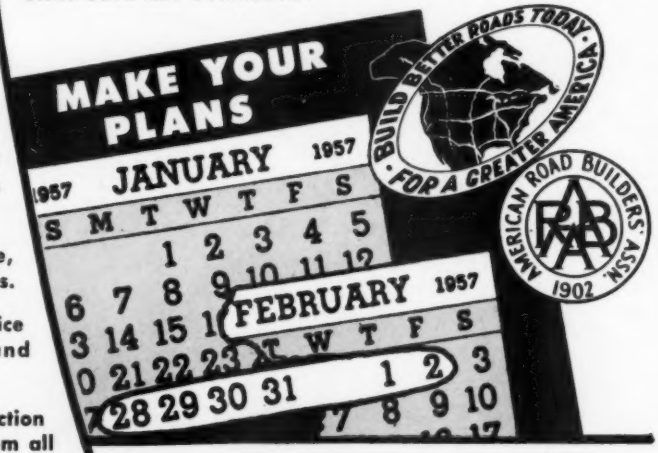
Almost 10 years since the last Road Show has seen vast changes —changing personnel in your organization—new people and expansion. Field operations cannot possibly permit the fullest study or comparison of equipment and the press of business reduces the opportunity for learning all there is to know of new methods.

The A. R. B. A. Road Show and Convention will bring you the whole construction story wrapped up in one package. 300,000 sq. ft. of equipment—over 1,000 pieces of machinery—down-to-earth discussions by leading construction authorities—a 6-day opportunity to "catch up" on all that's new in construction.

The tremendous immediate future of the industry warrants your planning to be there. Write for data on reservations. Ask to be put on the list for future information on the 1957 A. R. B. A. Road Show and Convention.

The 10 Best Reasons Why You Should Not Miss The A.R.B.A. Road Show and Convention

1. First Road Show in nearly 10 years!
2. The best way to "catch-up" on latest advancements in equipment, materials and methods.
3. Helps you determine best buys in machinery through first-hand comparisons.
4. Gives you information you need to improve your operating efficiency.
5. Hear top-ranking specialists in all phases of highway, street and maintenance work.
6. Learn how latest Federal Government plans and regulations will affect YOU.
7. Meet leading Federal, State, County and Municipal authorities.
8. Discuss equipment and service needs with manufacturers and distributors.
9. Swap ideas with construction and maintenance experts from all over the world.
10. Renew old contacts . . . make new friends.



AMERICAN ROAD BUILDERS' ASSOCIATION

World Center Building Washington 6, D. C.

MUELLER®

ABSOLUTE CURB CONTROL

■ Inverted key design with steep key taper is your assurance of positive water control at the curb. The Mueller Inverted Key Curb Stop has a much steeper than average key taper – a light tap on the shut-off rod unseats the key, allowing easy turning, regardless of long periods of disuse.

■ Stop bodies and keys are precision ground and individually lapped together, assuring you of a watertight fit around the ports. Added insurance against leakage is attained by using inlet water pressure to exert an upward thrust against the bottom of the inverted key, seating the key solidly in the body. As inlet pressure is increased, upward thrust against the key is increased.

■ Iron pipe, copper, lead flange and wiped joint inlets and outlets may be used in various combinations to meet your specific requirements. Stops may also be ordered in Minneapolis pattern.

Ask your Mueller Representative, or write direct for more information on the inverted key and other Mueller Curb Stops. A wide choice of solid tee head curb stops with various combinations is also available.

MUELLER CO.

Dependable Since 1857

MAIN OFFICE & FACTORY DECATUR, ILLINOIS

PAYLOADER®

Ram twin-screw, self-powered rotary snow plow is an efficient, proven "PAYLOADER" attachment.

Ever since Hough pioneered and introduced the first unit-design tractor-shovel and called it a "PAYLOADER", the versatility and all-year usefulness of these units have sold themselves in great numbers to the officials of cities, counties, townships and states. Today, "PAYLOADER" tractor-shovels are an even better buy for public works departments because the designs have been constantly improved, because of a wide range of sizes and types, and because there are more and better attachments available, especially for the street and highway maintenance departments.

Notable features of today's "PAYLOADER" line include torque-proportioning differentials, no-stop power-shift transmissions, powerful 40-degree bucket breakout at ground level, planetary final drives and hydraulic-system load shock absorbers.

Your "PAYLOADER" Distributor is ready to show you how the superior design and versatility of "PAYLOADER" tractor-shovels make them your No. 1 Tax-savers 12 months of the year.

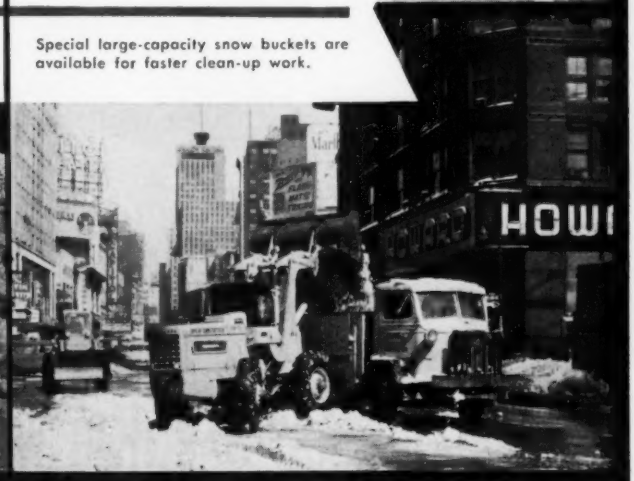
Top Public Service

12 MONTHS OF THE YEAR

Ram pick-up street sweeper mounts under bucket — dumps its loads into trucks.

Wain-Roy hydraulic back-hoes make a "PAYLOADER" a double ended digger.

"V" plows on the big 4-wheel drive sizes are real drift busters.



Special large-capacity snow buckets are available for faster clean-up work.

USEFUL ATTACHMENTS

- Hydraulic Back-hoes
- Pick-up Street Sweepers
- Rotary Snow Plows
- "V" Snow Plows
- Blade Snow Plows
- Backfill Blades
- Land-clearing Rakes
- Log Grapples
- Scarifier Teeth
- Snow Buckets
- Crane Hooks
- Fork Lifts
- Pusher Plates
- Winches

SAY "HUFF"

PAYLOADER®

MANUFACTURED BY

THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.

SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

THE FRANK G. HOUGH CO.
710 Sunnyside Ave., Libertyville, Ill.
Send information on "PAYLOADER" tractor-shovels and attachments for public works.

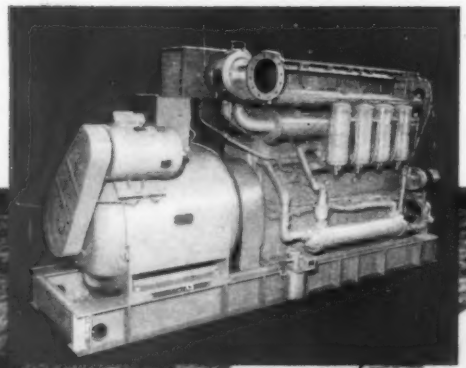
Name _____

Title _____

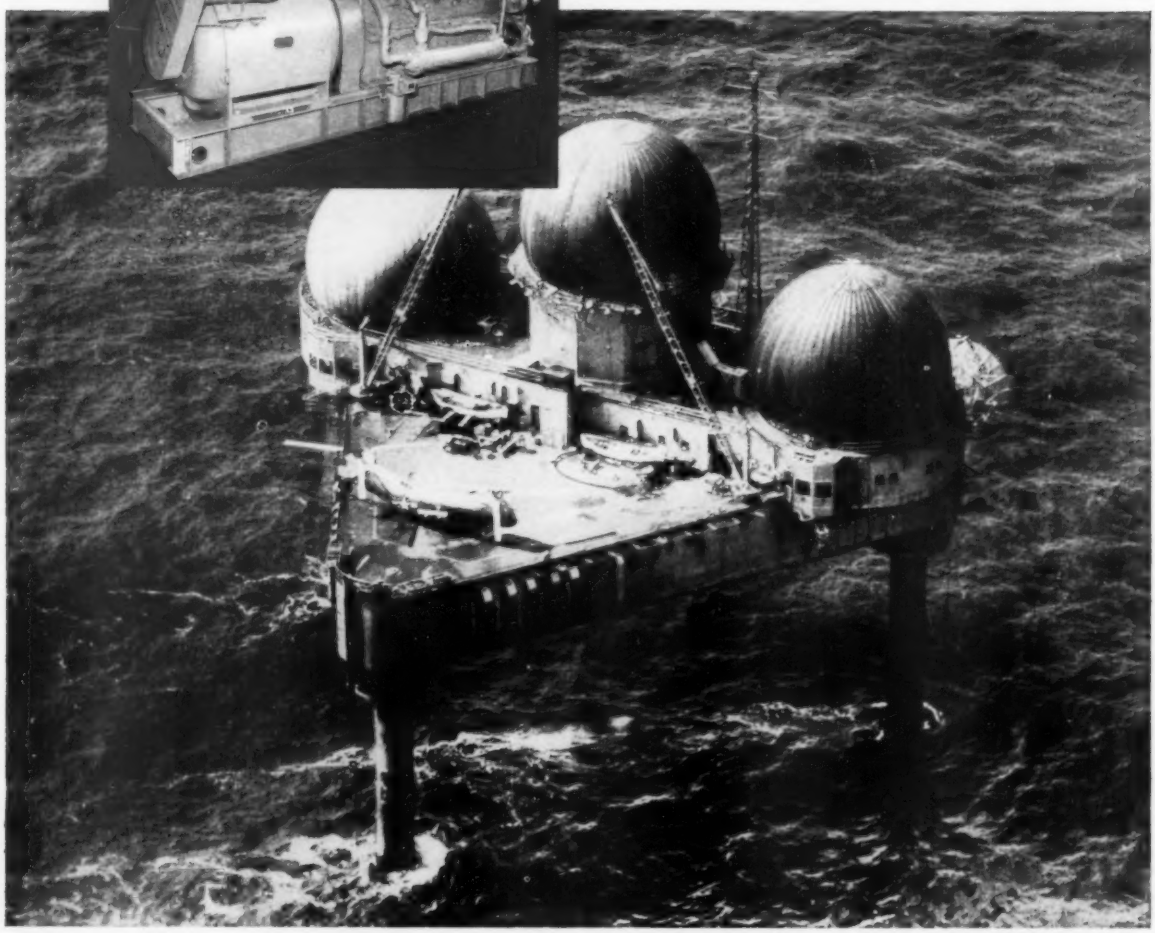
Gov't. Unit _____

Street _____

City _____ State _____



Powered by
White's Superior Diesels...



United Press Photo

TEXAS TOWERS' WARNING WILL ALERT OUR NATION

This U. S. Air Force early warning radar station off the coast of Cape Cod is called the Texas Tower. Aboard the Tower, radar eyes search the skies. In the event of approaching enemy bombers, a push of one red button will warn our coastal areas and start our air defense into action!

Two more Towers are now being built for the U. S. Air Force by the U. S. Navy, to be a vital part of our nation's far-reaching radar air defense system. They require high-quality, heavy-duty equipment giving dependable performance with minimum maintenance over long periods of continuous service. White's Superior Diesel engines meet these requirements . . . they have been selected to generate the power for the vital radar operations, and also for the radio, communication, heating, lighting and ventilating equipment aboard the additional Towers.

If you require rugged, heavy-duty, high-quality Diesel engines for the most dependable and economical operation, choose White's Superior Diesels. There's a size and type for virtually every requirement from 215 to 2150 horsepower, or 150 to 1500 KW. Get complete information now.

Superior ENGINES · ATLAS Imperial DIESEL ENGINES · White DIESEL

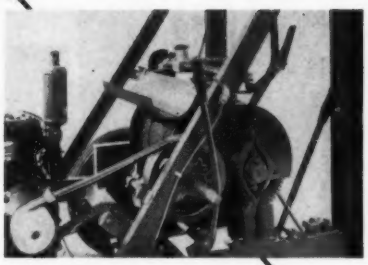
WHITE DIESEL ENGINE DIVISION

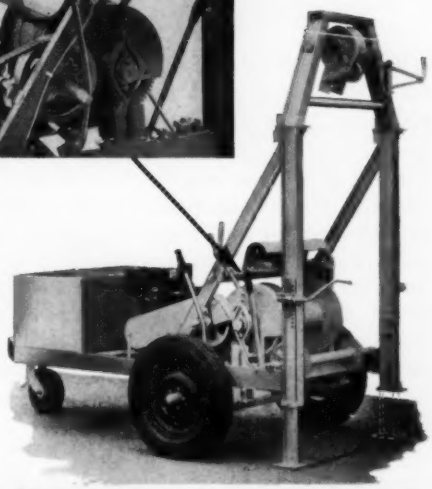
THE WHITE MOTOR COMPANY *Plant and General Offices: Springfield, Ohio*

Just One Lever*

CONTROLS "Flexible" BUCKET TRAVEL!

* It's Patented





1. Anyone who can "open a manhole" can *safely* operate this Flexible Booster Clutch.
2. Eliminates multiplicity of shafts, sprockets, chain, clutches and gear transmission found on all other make machines.
3. No maintenance other than replacing non-stretch belts--which are guaranteed 2 years.

AVAILABLE ON 8, 13 AND 25 H. P. MODELS

Flexible INC.

3786 DURANGO AVE., LOS ANGELES 34, CALIF.
(Distributors in Principal Cities)

Get Facts Now--Don't Be Sorry Later!

AMERICA'S LARGEST LINE OF PIPE CLEANING TOOLS AND EQUIPMENT

BAUGHMAN SPREAD-MOBILE

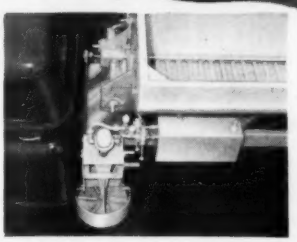
the Spreader that's Better ...for ice control Because...

HYDRAULIC MODEL FS-56

1. IT OFFERS COMPLETE HYDRAULIC CONTROL.
Speed of discharge from Chain & Flight Body Conveyor to Stainless Steel Reciprocating Cross Feeder is controlled by hydraulic motor. Second hydraulic motor controls speed of distributor, and width of spread.

2. EXCLUSIVE "CENTER-SPRED" DESIGN.
Permits spread in front of all four wheels; improves traction, visibility and pattern.

3. ONE-MAN CAB CONTROL.
Width of spread, amount of spread, starting, stopping—all are at driver's finger tips. Driver also controls "Safety Baffle" which dampens spread when approaching pedestrians or cars.



It's New! Stainless Steel Reciprocating Cross Feeder. Eliminates all the problems of stretch and freeze-up, common in most other mechanical methods.

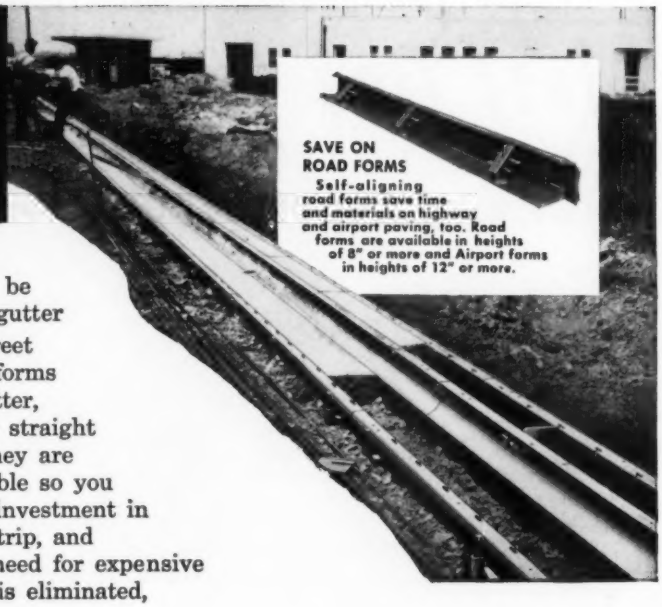
WRITE FOR NEW ICE CONTROL CATALOG!

BAUGHMAN

BAUGHMAN MANUFACTURING COMPANY

150 SHIPMAN ROAD • JERSEYVILLE, ILLINOIS

CURB YOUR COSTS
on Curb and Gutter Jobs
with **BLAW-KNOX**
Street Forms


SAVE ON
ROAD FORMS
Self-aligning
road forms save time
and materials on highway
and airport paving, too. Road
forms are available in heights
of 8" or more and Airport forms
in heights of 12" or more.

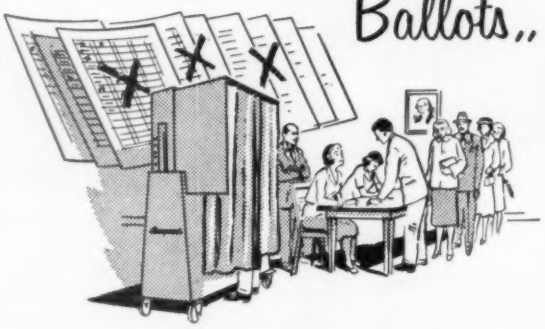
YOU can cut forming costs in half and be set to take on a wide range of curb and gutter jobs with Blaw-Knox "Universal" steel street forms. One "Complete Package" of these forms handles every concrete curb, curb and gutter, integral curb or sidewalk job from simple straight work to curved and serpentine shapes. They are standardized and completely interchangeable so you can do the most work with the smallest investment in forms. They are fast and easy to set or strip, and practically eliminate hand finishing. The need for expensive carpentry and costly single-use materials is eliminated, too. Your Blaw-Knox distributor can give you complete details—see him today.

50th Anniversary BLAW-KNOX 1906-1956

BLAW-KNOX COMPANY
CONSTRUCTION EQUIPMENT DIVISION
30 Charleston Avenue Mattoon, Illinois

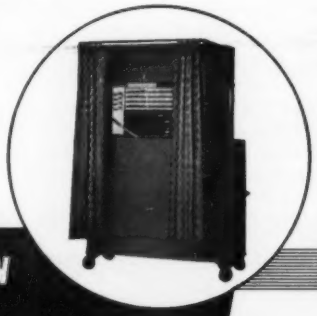
EVERY VOTE COUNTED—

No Spoiled Ballots,,



At each election, many PAPER BALLOTS are invalidated because of

1. Voting for more than the proper number of candidates.
2. Distinguishing marks which can be construed as identifying the ballot.
3. Erasures to correct mistakes.
4. Use of a pen instead of a pencil.
5. Failure to place cross mark fully within the voting square.



More than 6,500 cities and towns have found that these errors may be completely eliminated and every vote counted, through the installation of AUTOMATIC VOTING MACHINES.

AUTOMATIC VOTING MACHINE CORPORATION
JAMESTOWN, NEW YORK

TWO HEADS ARE BETTER THAN FOUR!

This assembly consists of two 4-in Rockwell single register compound meters, four Fig. 143 Nordstrom valves and two 8-in reducing manifolds. The over-all laying length conforms to A.W.W.A. standards for 8-in compound meters.

Dual Unit Compound Meter Manifold Is Easiest To Install and Service

An 8-in compound meter is a heavy, bulky piece of machinery. Installation is always a major problem and service a headache. You'll save time and effort—earn greater revenue by using two-meter Rockwell manifold assemblies. *They measure all the flows* with greater accuracy than a single big compound. And the complete assembly weighs approximately 100 lb less. It only takes *two* men to install.

Too, maintenance is simplified since either meter can be used to record off-peak loads while a new or repaired meter is being installed. The cost for all this accuracy and convenience is usually less than for a single big meter. Write for complete details.

ROCKWELL MANUFACTURING COMPANY

PITTSBURGH 8, PA. Atlanta Boston Charlotte Chicago Dallas Denver Houston Los Angeles Midland, Tex. New Orleans New York N. Kansas City Philadelphia Pittsburgh San Francisco Seattle Shreveport Tulsa In Canada: Rockwell Manufacturing Company of Canada, Ltd., Toronto, Ontario

ROCKWELL

ROCKWELL WATER METERS

A Size and Type For Every Kind of Service

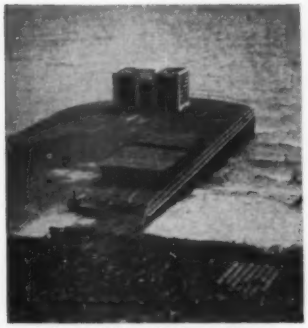
ARCTIC · TROPIC · TYPE 12 · TYPE 14 · TYPE 16 · TYPE 6 · EUREKA B · DUAL UNIT COMPOUND

16 MILLION GALLONS OF WATER PER DAY, even in extremely dry periods

Says

Mr. R. E. Cannard
Manager, City of Manitowoc
Public Utilities

the RANNEY METHOD a "MUST" for the CITY OF MANITOWOC, WISCONSIN

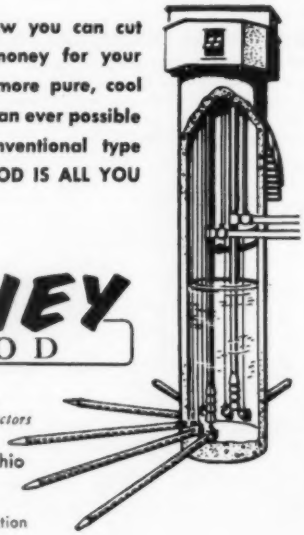


Collector "A" at the Power Plant, City of Manitowoc

Mr. Cannard says, "We have found the RANNEY to be far more efficient than the conventional type wells. Our RANNEY collectors require less personnel, fewer pumps, cuts operating costs, and eliminates filter stations altogether. The RANNEY METHOD has solved our water problems and the collectors are just as good today as they were when they were installed ten years ago."

FOR YOUR CITY TOO

Write now, and learn how you can cut unnecessary costs, save money for your community, and produce more pure, cool water from just one well than ever possible before, with multiple conventional type wells. THE RANNEY METHOD IS ALL YOU NEED.



RANNEY METHOD

Water Supplies, Inc.
Water Supply Engineers and Contractors

841 Alton, Columbus 19, Ohio
Dept. AC-1

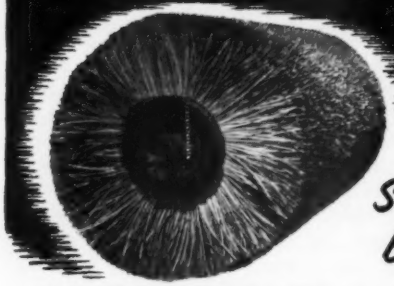
Associate:
Ranney Method Western Corporation

WORTHINGTON-GAMON

LIQUID METERS
All Sizes All Types

WORTHINGTON-GAMON METER DIVISION
Worthington Corp.
296 South Street Newark 5, New Jersey

FIBERS for STREET SWEEPER BROOMS



Quality Fibres and Flat Steel Wire Immediately Available for Refilling Street Sweeper and Gutter Brooms. 42 Years' Experience Assures You of a Reliable Source of Supply.

As direct importers and suppliers of Palmyra Stalks, African Bass, Split Hickory and Flat Steel Wire, we can furnish your complete requirements for refilling Street Sweeper Brooms and Gutter Brooms. Our quality is the best and prices very competitive.

3 WAREHOUSES
Strategically Located in
★ NEW YORK
★ MINNEAPOLIS
★ LOS ANGELES
Assure you the finest of service.

Write FLO-PAC FIBRES, INC. for samples and prices or contact your supply dealer.
Expert Broom Refilling Service At Our Minneapolis and Los Angeles Plants

FLO-PAC FIBRES, INC.
1501 4th Ave. So., Minneapolis 4, Minn.
Subsidiary of—FLOUR CITY BRUSH CO., Minneapolis 4, Minn.
PACIFIC COAST BRUSH CO., Los Angeles 21, Calif.
FLO-PAC BRUSHES

FORD TRACTOR-LOADER works every day of the year

With a Ford Tractor and new "Step-On" Loader, you have equipment that can handle many kinds of work, all year around. It's an excellent unit for fast, efficient removal of snow. It is also excellent for maintaining roads and streets, parks and roadsides.

The advanced design of the new Ford "Step-On" Loader allows fast, easy loading, lifting and dumping. Ford Tractors give you greater ease of handling . . . extra power for jobs like loading, dozing and sweeping. They can be equipped to handle a wide range of other jobs, too.

For an investment that will keep paying dividends every day in the year, invest in a Ford Tractor and "Step-On" Loader. See your Ford Tractor and Equipment Dealer right away!

CLEAR LARGE AREAS QUICKLY–Ford Tractor with blade provides ample power to handle heaviest snowfalls. Attach broom to sweep streets and parking areas as the snow falls.

LOAD A YARD A MINUTE–Ford's new "Step-On" Loader provides capacity for a wide range of jobs. Compare it with any loader in its class for ease of handling and safety.

TRACTOR AND IMPLEMENT
DIVISION
FORD MOTOR COMPANY
BIRMINGHAM, MICHIGAN

Ford

TRACTORS

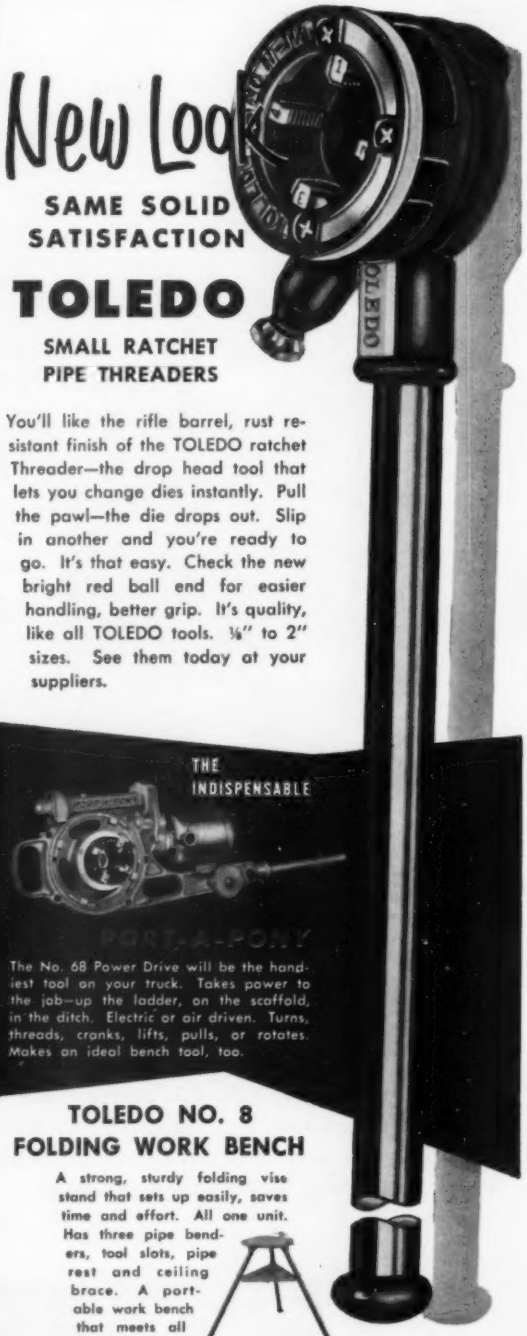
New Look

SAME SOLID SATISFACTION

TOLEDO

SMALL RATCHET PIPE THREADERS

You'll like the rifle barrel, rust resistant finish of the TOLEDO ratchet Threader—the drop head tool that lets you change dies instantly. Pull the pawl—the die drops out. Slip in another and you're ready to go. It's that easy. Check the new bright red ball end for easier handling, better grip. It's quality, like all TOLEDO tools. ⅛" to 2" sizes. See them today at your suppliers.



THE INDISPENSABLE

PORT-A-PONY

The No. 68 Power Drive will be the handiest tool on your truck. Takes power to the job—up the ladder, on the scaffold, in the ditch. Electric or air driven. Turns, threads, cranks, lifts, pulls, or rotates. Makes an ideal bench tool, too.

TOLEDO NO. 8 FOLDING WORK BENCH

A strong, sturdy folding vise stand that sets up easily, saves time and effort. All one unit. Has three pipe benders, tool slots, pipe rest and ceiling brace. A portable work bench that meets all needs. Wt. 33 lbs.

THE TOLEDO PIPE THREADING MACHINE COMPANY
TOLEDO 4, OHIO

THREADED PIPE
it's tight—it's best—costs less

BUILDERS OF THE WORLD'S FINEST PIPE TOOLS

TOLEDO®

PIPE THREADERS • PIPE WRENCHES • PIPE MACHINES

ELEVATED STEEL TANKS

● Elevated Steel Tanks for water supply, ranging from 5,000 to 2,000,000 gallons—ranging from standard hemispherical self-supporting bottom to spherical tank on tubular tower.

Correctly built in accordance with AWWA specifications. Send us your inquiry, stating capacity, height to bottom and location. Established 1854. Write for *Tank Talks.*

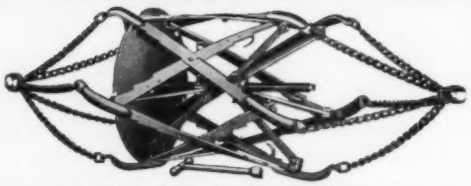
R. D. COLE MANUFACTURING CO. COLE NEWNAN, GEORGIA

Elevated Tanks, Pressure Vessels, Chemical and Processing Equipment from Aluminum, Stainless and Carbon Steel, Monel and Other Alloys.

Established 1854

R. D. COLE MANUFACTURING CO.
NEWNAN, GEORGIA

EXPANDING ROOT CUTTER SEWER CLEANER



Fits in on Every Sewer Cleaning Job
Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Open and in action removing roots and cake sediment like this.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY
108 East Walnut St. Nappanee, Ind.

Kansas City
doubles the efficiency
of 9 municipal departments...

all coordinated with 2-way radio communication

With its intricate Motorola radio network, 288 city vehicles in Kansas City, Missouri, are getting the jump on such "normal" public safety emergencies as broken water mains, traffic emergencies, floods, fire, etc....and doing a more efficient job...serving the everyday needs of this sprawling metropolis.

Heart of the entire system is the modern communications building. With its 300-foot tower, all messages are funneled through it. As an added precaution, three emergency base stations are maintained in case of disability of the main transmitter.

Four frequencies handle the needs of the 9 departments. In times of extreme emergency or disaster, however, a single dispatcher would broadcast over all four frequencies simultaneously, welding all elements together into a single giant force.

Kansas City's model system is one of the reasons Motorola has a reputation for supplying 2-way radio whose performance, dependability and ease of maintenance is *unmatched.* Additional Motorola 2-way radio has been skillfully integrated with existing Motorola equipment to expand the system as new needs arose. And future provision for expansion is built in.

Your city can have a coordinated municipal radio system, and it will probably cost less than you imagine. A Motorola Communications Engineer will be happy to give you all the details. Write, phone or wire TODAY.

write, phone or wire TODAY!

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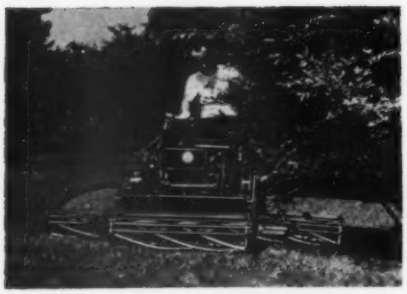

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CLEANS INSTANTLY

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But now—using Water Impact and Air Pressure, here is a new unit called the **Plumber's Flushing Gun,** which cleans all lines up to 100 ft. It will open any number of bends in pipe. Yet anyone can operate this new gun, which triggers easily.

TOILETS, URINALS, SINKS, and FLOOR DRAINS clogged with paper, grease, rags, sand, and other debris can be cleared with one or more shots from the gun, **saving the owner the Gun's price the first time it is used.** This new Flushing Gun may be used on any ½ to 6 inch waste pipe including Sink Drains, Floor Drains, Hot Water Pipes, Drinking Fountains, Septic Tanks, and Urinals. Obstructions melt away INSTANTLY when struck by the hammer like blow of this new unit.

This new Plumber's Flushing Gun is offered on a 30 Day Free Trial to prove its value. **BUT MOST IMPORTANT IS THIS**—What is this Tool worth to your City, Town, Office Building, or in your own home in **Costly Plumbing Bills Saved.** For your own good—Fill coupon right now—No agent will call. Obey that urge, mail now or write postcard. (Chicago Phone Kildare 5-1702.)

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All water meters are fine instruments. Any fine instrument loses accuracy as it wears. Because of this fact, written between the lines of any water meter price are two items you can't read for many years. Yet they are vital in choosing the lowest "total price."

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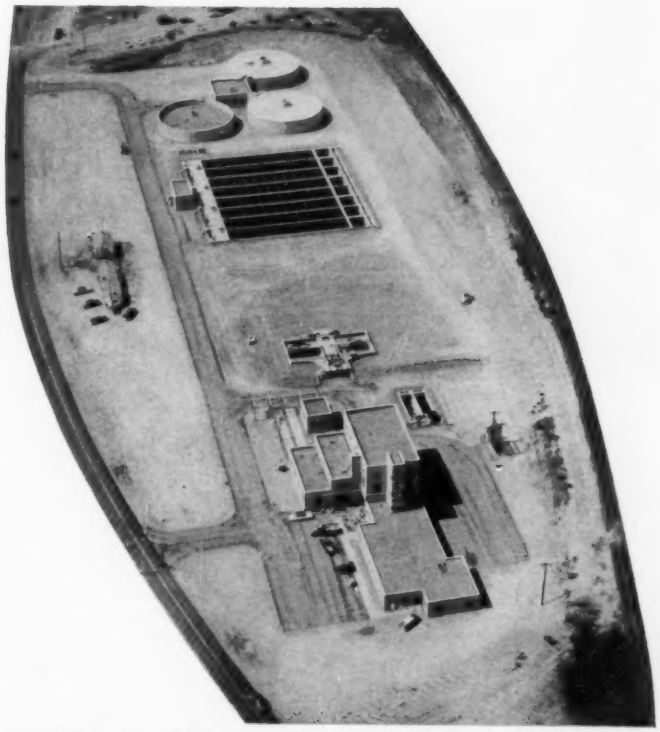
Tennessee's First Major Sewage Treatment Plant

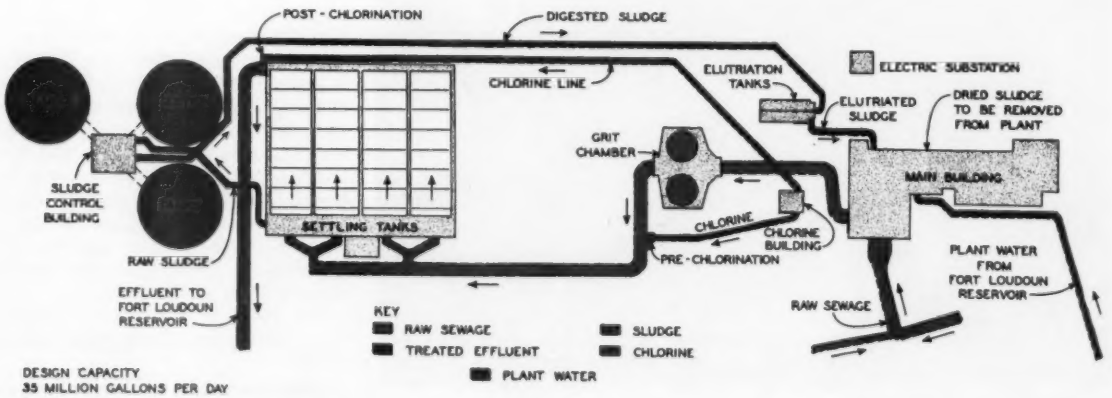
Two new plants help maintain the natural attractiveness and purity of the Tennessee River through and immediately below the city

By J. W. WHISMAN
Engineer in Charge
Sewage Disposal System
Knoxville, Tenn.

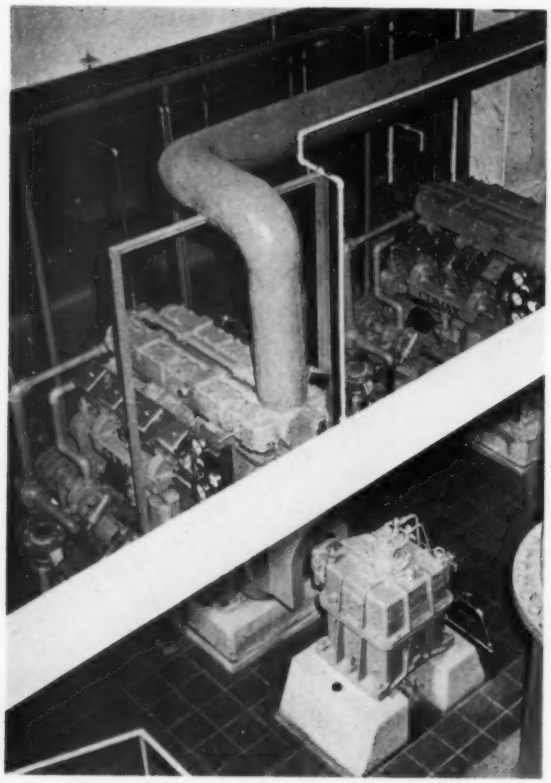
THE City of Knoxville has discharged untreated domestic and industrial wastes into the Tennessee River ever since the first sewer was laid. Construction of a dam at Fort Loudoun, 43 miles downstream from Knoxville, did not change the picture. Actually, it made conditions worse, bringing the backwater of the dam upstream to the city's doorstep. Instead of dumping raw sewage into a flowing river, the city discharged



Knoxville's new Third Creek plant will contribute greatly toward the restoration of the Tennessee River to its natural attractiveness and safety.



Flow diagram of Tennessee's first major sewage-treatment plant.



Sludge gas serves as fuel for these two Climax engines. Note gear box that transfers power from the engine to the pump, located on lower level.

waste into the quiet waters of a huge reservoir used for fishing, boating, and, of greatest importance, for the city's source of water supply.

The sewage formed large areas of scum, caused portions of the reservoir to become unsightly, and created a serious health problem. Three city sewers discharged their contents near the water-plant intake, making it possible to draw sewage into the intake under low-flow conditions. The problem then, was to devise an effective sewage collection and treatment system that would relieve the river of this reservoir overdose.

For technical guidance, the city engaged the firm of Greeley and Hansen, consulting engineers of Chicago. This firm prepared a report and submitted it to the city council in 1945.

After accepting the report and approving the final design, the council passed a resolution authorizing the work and the issuance of sewer revenue bonds not to exceed $6,000,000. The approved design included two treatment plants and a system of interceptors, force mains, and two pumping stations. The bonds were sold in 1953 and will be completely retired in 1988.

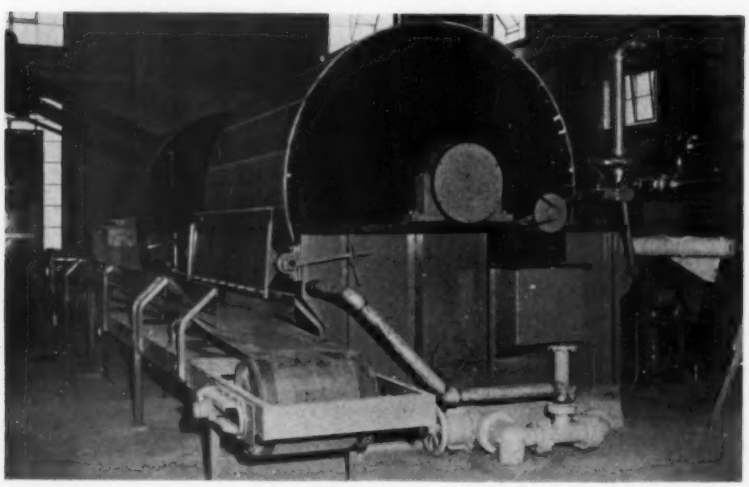
Third Creek Plant

Of the two installations, the Third Creek plant is the largest, and the first major sewage-treatment plant constructed in Tennessee. Constructed at a cost of approximately $2,000,000, this plant is designed to remove 55% suspended solids and 35% BOD at a flow rate of 35 mgd (million gallons daily). Design criteria was based on a 1965 estimated population of 261,000 persons contributing an average sewage flow of 35.7 mgd. Sewage characteristics at this flow were estimated at 55,000 pounds per day of suspended solids and a five-day BOD loading of 62,500 pounds.

Sewage enters the plant through two influent lines, each equipped with mechanically cleaned bar screens that are 3½ feet wide and have 1-inch clear openings. The larger suspended and floating solids picked up by the bar rakes are then macerated by Jeffrey grinders and dumped back into the raw-sewage line. Each grinder has a capacity of not less than 1,500 pounds of screening per hour. Two Rodney Hunt pneumatically operated sluice gates control the entrance of sewage into the plant. A Brown flow meter* records a permanent log of the sewage volumes entering the plant.

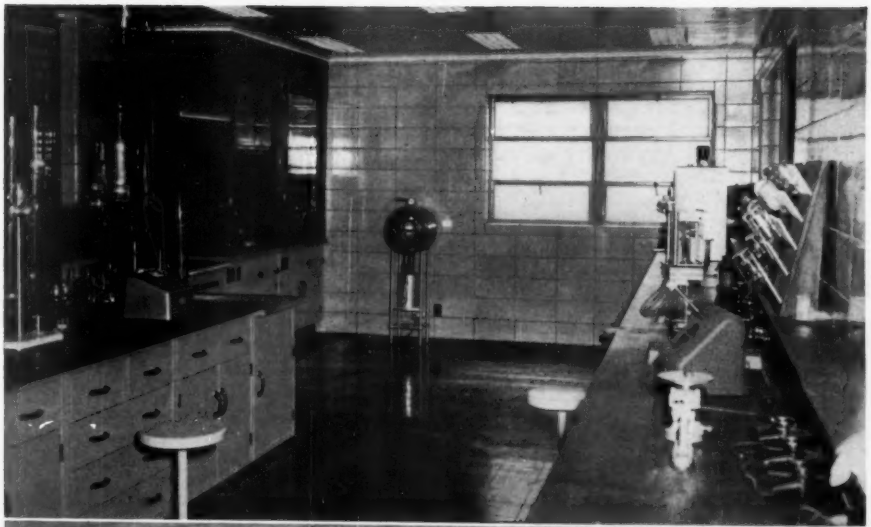
The raw sewage requires one lift, from the wet well to a sewage conduit, and then flows through the rest of the plant by gravity. Pumping is accomplished by two Fairbanks-Morse electrically driven pumps, each rated at 25 mgd and operating against a head of 36½ feet, and two Fairbanks-Morse pumps driven by Model V-85 Climax gas engines, rated at 17.5 mgd and operating against a head of 35 feet. The engines are designed to operate on the sludge gas produced at the plant.

The two gas engines are located on the floor above the pumps. Power



Digested sludge is dewatered on two Eimco vacuum filters and is then removed from the building by a belt conveyor.

* Manufactured by Minneapolis-Honeywell Regulator Company, Industrial Division, Philadelphia, Pa.



The Third Creek plant laboratory is fully equipped to make physical, chemical, and bacteriological tests of water and sewage.

This 1.4-mgd Imhoff installation effectively treats domestic waste collected from one of Knoxville's residential areas.

is transmitted to the pumps through a gear box manufactured by the Philadelphia Gear Works.

From the pumps the sewage flows through one of two 28-foot-square Dorr Detritors. These units have a maximum depth of 2½ feet and a maximum overflow rate of 37,000 gallons per square foot per day. Grit removed by the Detritors is washed, elevated, and discharged into a Dempster-Dumpster unit preparatory to final disposal.

Primary Treatment

Four primary sedimentation tanks provide the last stage of treatment at the plant, with the exception of post-chlorination. Each tank is divided into two channels 20 feet wide, 13 feet deep, and 144 feet long. Total tank volume is 300,000 cubic feet, providing a detention period of 1½ hours at design flow. The tanks employ Jeffrey collectors to remove the sludge.

Air is added to the sewage through stationary diffuser tubes located in the influent channel of the settling tanks. A Roots-Connersville blower supplies the air at the rate of 75 cfm at a delivery pressure of 3 psi.

Pre- and post-chlorination is practiced at the Third Creek plant. Chlorination equipment includes three Everson Sterlators, Style PR, each having a capacity of 2,000 pounds of chlorine per day. The three machines are housed in a separate chlorine building. A chain hoist and monorail system facilitates the handling of chlorine cylinders. The chlorine storage yard, located adjacent to the chlorine building, is also equipped with scales for weighing the chemical.

After post-chlorination, the plant effluent flows through a Parshall flume into Fort Loudoun reservoir. A Simplex recording instrument provides a constant record of the quantity of sewage being discharged from the plant.

Three sludge digestion tanks, each 75 feet in diameter with a sidewall depth of 22 feet and a 9-foot-deep

sludge cone, provide a total volume of 325,000 cubic feet. Two tanks have fixed covers and one tank has a floating cover. Three heat exchangers, each rated at 750,000 BTU per hour, supply the necessary heat to the sludge for proper digestion. The floating cover and heat exchangers were supplied by Pacific Flush Tank Company. The sludge is recirculated by three Chicago Pump Company Scru-Peller pumps, each having a capacity of 300 gpm.

Raw sludge is pumped to the digester from the primary settling tanks by two Marlow vertical plunger-type pumps rated at 100 gpm against a 40-foot head. Two additional Marlow pumps transfer the sludge between the digesters. These units pump 100 gpm against a 25-foot head.

Sludge from the digesters is first washed in the elutriation tank and is then pumped to two vacuum filters for dewatering.

The elutriation tank has two channels, each 10 feet wide, 9 feet deep, and 40 feet long, and each equipped with Jeffrey sludge collectors. Total tank volume is 7,200 cubic feet. Here the sludge is washed, collected, and pumped to the filters. This elutriation, or washing, makes the sludge much more easily dewatered by the vacuum filters. The elutriated sludge transfer pumps are rated at 50 gpm against a 15-foot head and the pumps used to force the elutriated sludge to the filters are rated at 50 gpm against a 40-foot head. All four units were supplied by the Marlow Pump Co.

Plant water, pumped directly from Fort Loudoun reservoir, is used for elutriating water, flushing purposes and with the chlorinating equipment. Three Fairbanks-Morse pumps, rated at 55 gpm against a 20-foot head, supply the sludge washing water, and two Fairbanks-Morse units rated at 500 gpm against a 140-foot head, supply plant water for other uses.

Vacuum Filters

Sludge dewatering is carried out by two Eimco vacuum filters. The total filter area is 400 square feet with a capacity of 21,200 pounds (dry basis) of sludge filtered per 8-hour operating day, 5 days per week, with vacuum level maintained at 20 inches of mercury. The filtrate is removed by two Durichlor centrifugal pumps manufactured by Duriron Co. Each unit has a capacity of 50 gpm at a total dynamic head of 50 feet. Two Worthington, Model HBV, vacuum pumps are used in conjunction with the filters and two Roots-Connersville blowers supply the necessary air at 75 cfm at 3 psi per blower.

Ferric chloride used in the dewatering process is stored in three rubber-lined tanks, each 7 feet in diameter, about 10 feet long, and with a capacity of 9,000 gallons. The sludge digester gas is measured by three Roots-Connersville rotary positive meters.

The main building contains, in addition to the operating equipment, offices, a well-equipped laboratory, an assembly room, a machine shop, and a garage.

Electric power for the plant is distributed from a transformer substation located north of the main building. Cutler-Hammer equipment is used for electrical control.

Loves Creek Plant

Although smaller and simpler in design, the Loves Creek plant plays an important part in the over-all program. The raw sewage passing through this plant is practically all domestic sewage with no industrial wastes.

The sewage first passes through a manually cleaned bar screen that is 3 feet wide with 1-inch openings and then into a "detritus" tank. This unit has a capacity of 900 cubic feet and provides a six-minute detention period. The material settling to the bottom of the detritus tank is pumped through the grit chambers to the Imhoff tank by two grit pumps rated at 0.5 mgd. The overflow from the detritus tank enters the wet well and is pumped directly to the Imhoff tank by three pumps, two rated at 1.5 mgd and one at 2.5 mgd. The grit and sewage pumps are all Fairbanks-Morse units.

The grit chamber has two channels, each 1 foot wide and 20 feet deep. The 0.5 mgd that flows through each channel provides a water depth of 9¼ inches and a velocity of 1 fps.

The Imhoff tank has three sludge hoppers with a total volume of 33,000 cubic feet. The effluent from this tank is passed through a chlorine contact tank 20 feet wide by 24 feet long with a 9-foot water depth. The total volume of 4,320 cubic feet provides a 45 minute detention period at design flow. Chlorine is applied throughout the year by two Wallace & Tiernan chlorinators, each having a capacity of 200 pounds per day.

The plant effluent is measured in a Parshall flume before discharge into the creek. Simplex recorders and Cutler-Hammer electric control, are used throughout the plant. Sludge pumping is accomplished by one Marlow plunger-type pump rated at 50 gpm against a 50-foot head. The sludge is dried on four beds, each 25 feet wide by 64 feet long.

The main building contains the bar screen, detritus tank, wet well, pumping equipment and controls, chlorinating equipment, small laboratory and office. This plant was put into service in September of 1954. The Third Creek plant started operation one year later, in September of 1955.

The small plant was designed on the basis of a 1965 population of 7,600 persons. The estimated sewage quantity will be 1.40 mgd having 1,290 pounds per day of suspended solids and a 5 day BOD of 1,210 pounds.

The over-all program included numerous interceptors, river crossings, and two new pumping stations. The Jones Street station includes three Worthington vertically operated centrifugal units. These pumps are rated at 1,500, 2,000, and 2,500 gpm. A Jeffrey mechanically cleaned bar screen and grinder are located in the pump station wet well.

The Cheowa Circle station also has three Worthington pumps. These vertically operated centrifugal units are rated at 600, 1,750, and 2,500 gpm.

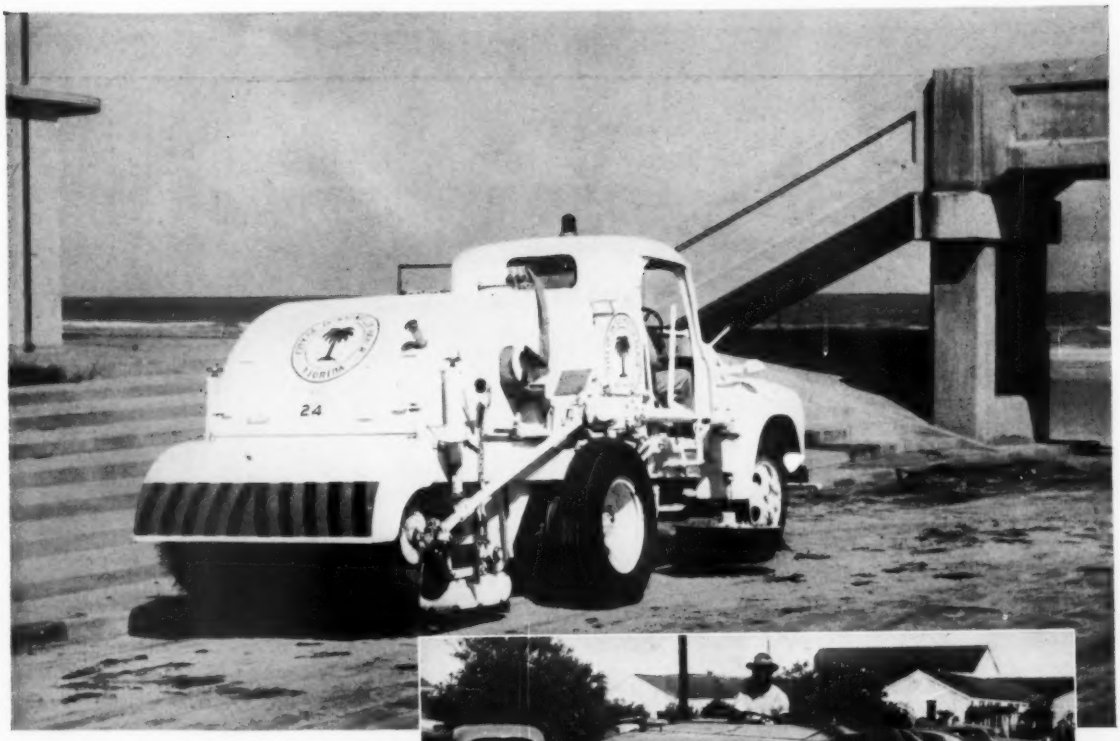
Work on the two plants was completed during the administration of Mayor George R. Dempster. The Third Creek plant was constructed by James McHugh & Sons, Chicago, and the Tennessee Armature & Electric Co., of Knoxville. Hicks Construction Co. had the contract for the Loves Creek plant.

Roy Gentry is director of public service and L. C. Bailey, city engineer. The Honorable Jack Dance is the present mayor of Knoxville.

Call to Mayor Brings One-Minute Prayer

RECENTLY, when citizens in Artesia, N. M., dialed for Mayor William Yeager, they got a one-minute prayer instead.

Artesia's mayor had not suddenly decided that all his constituents were in need of salvation. It was just that he had moved and had been given a new telephone number. His old number, still listed in the directory, was assigned to a "Dial-a-Prayer" system which, when telephoned, provided the caller with a one-minute prayer.



Above:
Beach-area cleaning can be heavy, when the sweeper has to pick up substantial quantities of sand. However, this new Mobil Sweeper unit does the work without difficulty.

Right:
In the outlying areas the smaller Gutter-Snipe sweeper keeps streets clean handily.

Two Sweepers Needed

Jacksonville Beach, Fla., with 10,500 persons, uses one large and one small sweeper to keep its streets clean

By H. J. MacCOTTER
City Manager
Jacksonville Beach, Fla.

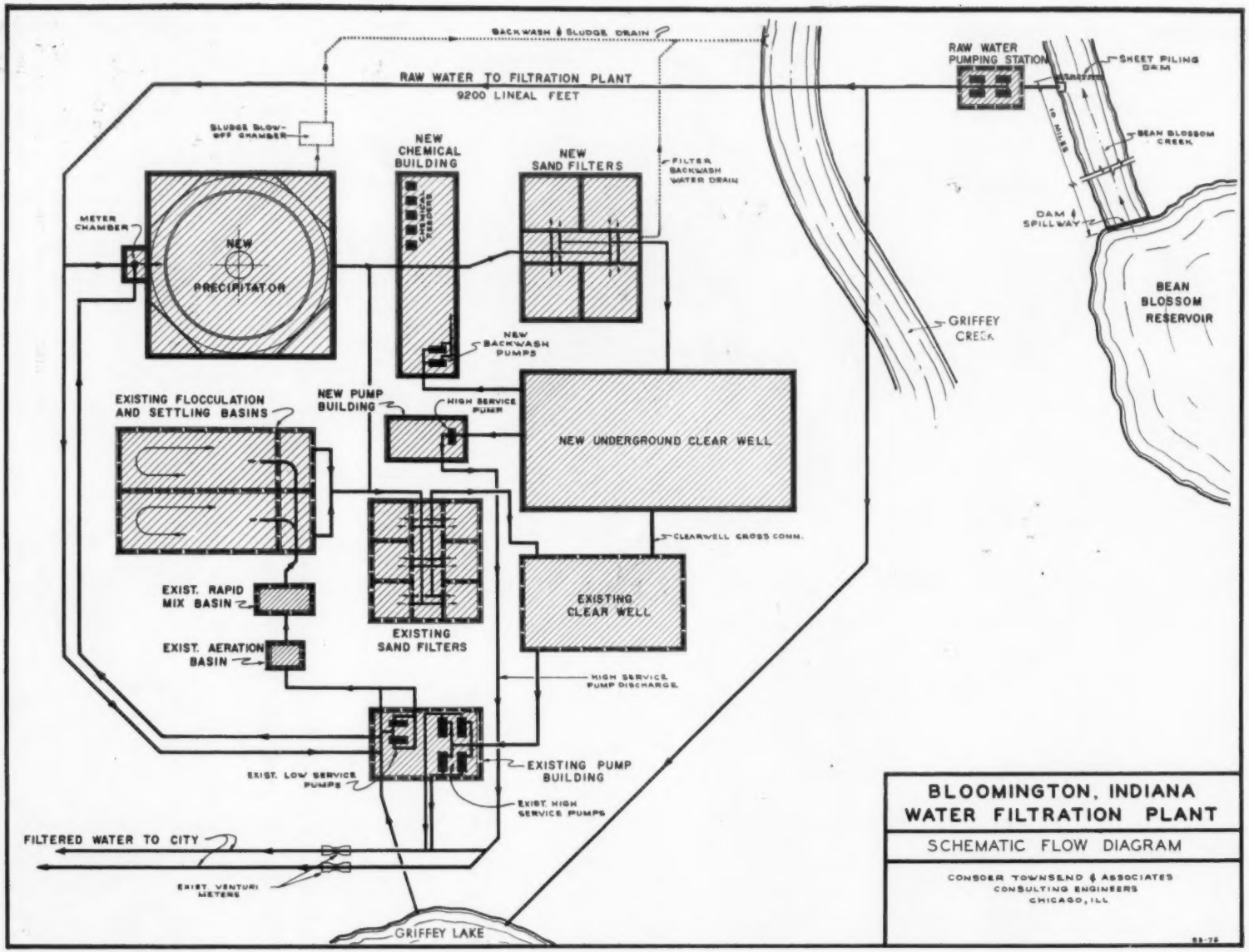
CITIES in our area have a year-round obligation to keep streets clean. Much of the debris collecting on the streets is sandy and abrasive. Although we have a population of approximately 10,500 and a total of 41 miles of paved streets, we find that our street sanitation program works best with one large and one smaller street sweeper.

The larger unit is a Mobil Sweeper, whose truck-type chassis makes it particularly useful for moving around our city quickly. Its large hopper permits it to clean up a substantial mileage of streets before unloading. The smaller sweeper, a Gutter-Snipe, in contrast, gets around conveniently, particularly in our business district, and supplements the work of the other machine in an efficient manner.

Jacksonville Beach has approximately 6 miles of streets with curbs, 35 miles of streets without curbs, and 20 miles of alleys. We sweep them all with our two units.

The sweepers cover the main business district daily from 4:00 a.m. to 10:00 a.m. They go to the outlying districts from 10:00 a.m. to 2:00 p.m. The sweepers do all the work. We do not supplement them with flushers. However, we do have one truck and four men who hand-sweep portions of the street and help load the debris dumped from the sweeper hopper.

The sweepers use bamboo fiber in the rear brooms. Both the fiber brooms and the wire gutter brooms will operate an average of 400 miles per filling. The sweepers will operate every day in summer and 26 days in our rainy winter season.


BACKWASH & SLUDGE DRAIN
RAW WATER TO FILTRATION PLANT
9200 LINEAL FEET
RAW WATER PUMPING STATION
SHEET PILING DAM
10 MILES
BEAN BLOSSOM CREEK
SLUDGE BLOW-OFF CHAMBER
NEW CHEMICAL BUILDING
NEW SAND FILTERS
FILTER BACKWASH WATER DRAIN
METER CHAMBER
NEW PRECIPITATOR
DAM SPILLWAY
BEAN BLOSSOM RESERVOIR
GRIFFEY CREEK
NEW BACKWASH PUMPS
EXISTING FLOCCULATION AND SETTLING BASINS
NEW PUMP BUILDING
HIGH SERVICE PUMP
NEW UNDERGROUND CLEAR WELL
CLEARWELL CROSS CONN.
EXIST. RAPID MIX BASIN
EXISTING SAND FILTERS
EXISTING CLEAR WELL
EXIST. AERATION BASIN
HIGH SERVICE PUMP DISCHARGE
EXISTING PUMP BUILDING
EXIST. LOW SERVICE PUMPS
EXIST. HIGH SERVICE PUMPS
FILTERED WATER TO CITY
EXIST. VENTURI METERS
GRIFFEY LAKE
BLOOMINGTON, INDIANA
WATER FILTRATION PLANT
SCHEMATIC FLOW DIAGRAM
CONSOER TOWNSEND & ASSOCIATES
CONSULTING ENGINEERS
CHICAGO, ILL.

Lake Lemon, formerly known as Bean Blossom Reservoir, provides ample water for growing Bloomington, and is also used for boating, fishing, and general recreation. The schematic flow diagram on the opposite page illustrates the flexibility of Bloomington's filtration plants.

A Second Plant for Bloomington

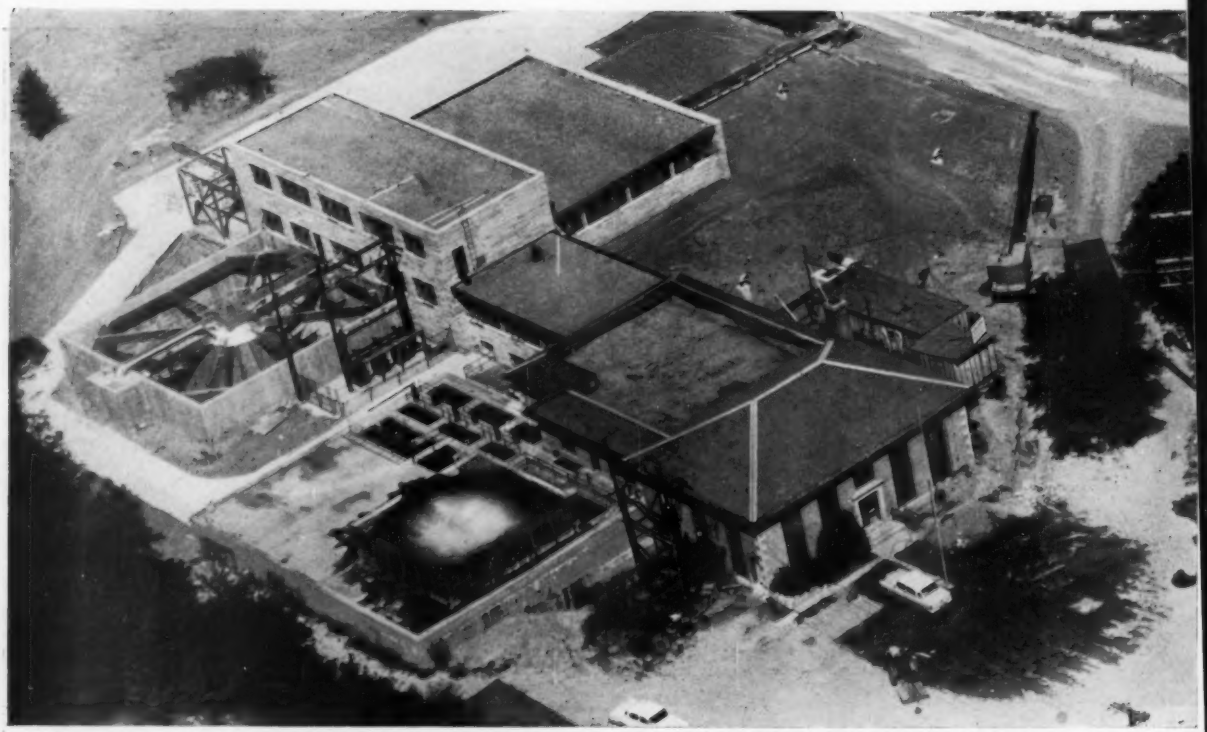
Two plants and a second source of supply end water worries and provide for continued growth

By SYDNEY L. ZEID, *Associate*
Consoer, Townsend and Associates
Consulting Engineers
Chicago, Ill.

BLOOMINGTON, Ind., is one city that has no intention of letting water problems interfere with its future. As in many communities, a water shortage did exist at times. The old plant was too small and the existing reservoir became inadequate and unreliable, especially in prolonged hot and dry weather. This trouble served as a warning and the city lost no time in embarking upon a two-phase construction program costing approximately $3,250,000.

Of prime importance was an additional source of supply, obtained by constructing an earthen dam and concrete spillway on Bean Blossom Creek about 10 miles northeast of the filtration-plant site. The new reservoir collects water from a 70-square-mile drainage area forming a lake approximately 1,536 acres in area with 8 to 10 miles of shoreline. Storage capacity of the reservoir is approximately 5½ billion gallons at a maximum depth of about 30 feet. Besides serving as a water supply, the lake is used for boating, fishing, and general recreation.

An outlet structure at the dam controls the flow of water from the reservoir into Bean Blossom Creek. This flow continues in the creek bed for approximately 11 miles to the raw-water pumping station. Here a



The two plants, although structurally connected, operate as independent units.

low-head dam constructed of steel-sheet piling creates a pool of water that assures a submerged inlet for the pump station and a minimum water level in the pump-station wet well. The water enters through a concrete inlet structure located on the bank of the creek, flows through a 30-inch concrete pipe, and then passes through a Chain-Belt traveling water screen before entering the wet well. Four Layne deep-well turbine-type pumps deliver the water through an older 12-inch and new 20-inch pipeline to the filtration plant. The pumps have a combined capacity of 8 mgd (million gallons daily) and are driven by U. S. electric motors. Water from this station can also be pumped to the old plant or to Griffy Reservoir.

The new Lake Lemon reservoir will augment rather than replace Griffy reservoir, the original source of than replace Griffy Reservoir, the original source of though Griffy Lake has proved to be inadequate during periods of prolonged hot and dry weather, present plans call for its use to supply as much of the daily demand as possible with the new reservoir making up the deficiency. Thus the possibility of another water famine in Bloomington has been eliminated for the foreseeable future.

This first phase of the construction program was completed and placed into service in 1953 at a cost of approximately $1,750,000.

Second Phase

Phase two of the Bloomington program, included the construction of a new filtration plant, a 2,000,000-gallon standpipe by Hammond Iron Works, and several miles of distribution mains throughout the city.

Existing filtration plant facilities, constructed in 1926 and 1939, include one aeration basin; two rapid-mix flocculation and settling basins; six rapid sand filters, each rated at 0.5 mgd; and a head house containing the raw water, backwash and high service pumping units, a laboratory, chemical feeder and storage room, boiler room, and a filtered water reservoir or clear-well. The rated capacity of this plant is 3 mgd.

New Plant

Preliminary studies indicated that it would not be economical to expand or add to the existing facilities. Further investigation showed that the best solution was to construct a new plant adjacent to, but completely independent from the existing facility. The new unit, designed for a capacity of 6 mgd, operates in parallel with the old plant to give a total rated output of 9 mgd. This plan also made it possible to keep the existing facilities in operation with minimum amount of interruptions during construction. Plans call for a complete rehabilitation of the old plant after the new facilities have been in operation for a short time.

Instead of the usual mixing, flocculation, and settling basins, the new plant has a 6-mgd Permutit Precipitator. All raw water entering this basin is first measured by a 20-inch Sparling propeller-type meter. The Precipitator basin is 55-feet square and has a side-water depth of 16 feet. This unit is designed for a rise rate of 1.5 gpm per square foot at its rated capacity, and provides a detention period of approximately 90 minutes. The complete process of mixing, flocculation, and settling takes place in this basin.

This type of conditioning basin usually represents a savings in first cost. In addition, it provides further benefits. Because of the combined action of suspended sludge in the mixing zone and the upward-flow sludge filter zone, it also provides a more completely treated water in most instances than the conventional units

supply. Chemical requirements should be less, since more turbidity, color, algae and other foreign matter can be removed for a given amount of coagulant with this basin and with the type of raw water available at Bloomington.

The conditioned water flows by gravity from the Precipitator to one of four rapid sand filters, each designed for a flow of 1.5 mgd at the rate of 2 gpm per square foot. The filter basins are divided into two cells, 26½ feet long by 11 feet wide, with a common trough between them. The average water depth is a little more than 8 feet.

Underdrains are of the Wagner type, employing cast-iron laterals and manifolds and Wagner concrete blocks. A 15-inch layer of gravel and 27 inches of sand make up the filter media. In addition, each cell is equipped with a Palmer rotary surface wash system.

The design of the wash-water troughs and backwash system provides a backwash rate of 15 to 18 gpm per square foot of filter. Each unit is equipped with an Infilco rate-of-flow controller, Darling hydraulically operated gate valves, and Infilco filter operating tables. The tables include hydraulic transfer switches for filter valve operation, push-button control for operating the backwash pumps, and Infilco rate-of-flow and loss-of-head gauges.

Construction of the pipe gallery and related structure allows for future expansion when required. The filter building is a one-story structure constructed of reinforced concrete and native Indiana limestone. The pipe gallery is dehumidified to prevent the accumulation of excess moisture.

Filtered water storage capacity has been increased by constructing a new clear well beneath one row of filters and extending outward from the building in two directions. The new structure is designed to permit the addition of six more filters, should they be needed. Constructed entirely below ground, it is cross-connected with the existing clear well and provides an additional storage capacity of 830,000 gallons. Combined clear well storage at the plant is now 1,330,000 gallons.

The chemical building is a two-story structure located between the filter building and Precipitator, and is also constructed of reinforced concrete and Indiana limestone. The second floor houses the chemical-storage area, chemical-loading chutes, and the chlorine-feeder room. Each chemical-loading chute has a removable cover and is built off the floor sufficiently high for convenient loading. Ample space is provided for the storage of bag carbon, alum, and lime. An oil hydraulic Rotary Lift elevator provides adequate means for conveying the bag chemicals from the truck unloading platform at grade to the chemical storage area.

The chlorine feeder room is a separate enclosure, housing a chlorine gas evaporator, a small chlorine scale, and four chlorine machines, all Wallace & Tiernan units. One machine is a fully automatic, 400-pound per day feeder providing chlorine dosages proportional to the flow of raw water. It is actuated through the electric transmitter on the raw-water meter. Of the remaining three machines, one is new and two are used, having been moved from the old plant. All three are 200 pound per day manually operated units. A chlorine-solution distribution panel controls the flow of chlorine solution to the proper points of application. Both pre- and post-chlorination are practiced and the chemical is applied at several locations within the plant.

Chlorine gas is purchased in 1-ton containers and is stored on a concrete platform adjacent to the chemical building. A 7,200-pound-capacity Fairbanks-Morse platform scale, recessed in a concrete platform, weighs the chlorine. A structural steel frame, electric hoist, and monorail system facilitates handling of the chlorine containers. The gas is piped from the ton containers to the evaporator for distribution to the chlorine feeders.

The first floor of the chemical building includes the chemical feeder room, a miscellaneous storage room, and the electrical control center and meter panel. Chemical feed machines include two lime feeders and two alum feeders, each rated at 190 pounds per hour, and one 60-pound per hour carbon feeder. All are Wallace & Tiernan units.

At Bloomington, the Precipitator is used as a coagulation basin, not for softening. Alum is the coagulant with carbon added for taste and odor control and lime added for pH control.

The control center, located off the main corridor of the chemical building, contains the electric and meter panel. This panel controls all electric circuits and motor starters and contains meters covering raw water, high service and backwash flow; high service pressure and depth of water in the clear well. The transformer station serving the main control panel is located at the rear of the building.

The Precipitator sludge "blow-off" well, dehumidification equipment, vacuum priming system for the pumps, elevator equipment and piping and valves conveying the water to the filter pipe gallery are all located in the basement of the chemical building.

The vacuum priming system is automatic and services the existing and new pumps. Two units are provided. The sludge "blow-off" well is separated from the rest of the basement to prevent excess moisture.

Pumping Equipment

The pumping units are housed in the basement of a one-story structure connecting the new plant with the existing plant. The first floor has an open sight well permitting one to look down on the pumps. Present equipment includes three backwash pumps and one high-service pump. Space has been provided for two additional units.

Two Dean-Hill pumps, rated at 3,900 gpm against a total head of 60 feet, are used to backwash the new filters. The third pump, a Worthington unit rated at 2,600 gpm, is used to backwash the older filters. This pump was moved to the new building.

The new high service pump is a Dean-Hill unit, rated at 4 mgd against a total dynamic head of 405 feet. This unit is powered by a 400-hp Marathon motor.

All of the new pumps are of the centrifugal type with horizontal shafts, split casings, and side suction and discharge. The pumps take suction from the clear well through a looped pipe header. An automatic cone check valve protects the high-service pump on the discharge side and a Pelton surge suppressor on the high-service pipe header absorbs any surge in the pipeline in the event of a sudden pump shutdown. Total high service pumping capacity is 11.5 mgd provided by five units.

The entire Bloomington water-improvement program was designed and supervised by Consoer, Townsend and Associates of Chicago, Ill. Paul Stutsman was the resident engineer on the project. The work was done under the administrations of Mayor Emmett Kelly and Mayor Thomas L. Lemon. Lester Thornton is in charge of the water department.

Biweekly rubbish collections replace annual clean-up week campaign and result in a cleaner community

Portland Adopts Municipal

By Julian H. Orr
City Manager
Portland, Maine

THE inauguration of a municipal refuse collection program in September 1955 closed a period of "thinking" about an idea that lasted almost 20 years. Interest in municipal rubbish collection began here as early as 1936 when the city engaged an engineering firm to design a refuse collection and disposal system. Several studies have been made since then by the city manager's office and the public works department.

Previous proposals included frequent collection by the city of both garbage and rubbish, using a force of about 125 men and 35 trucks, as well as a special garage and modern incinerator; but such a program was not feasible financially. To bring the program within reasonable limits, the question of collection was divorced from the disposal problem.

Residential Collection Only

Prior to the new system, we collected rubbish from sidewalk litter barrels in the business district and once each year engaged in an annual clean-up week campaign. This campaign was not only costly but forced an untimely suspension of street maintenance activities that lasted from 10 to 15 days. Such a program was clearly inadequate. Rubbish accumulated around crowded buildings during the rest of the year, creating offensive nuisances and, often, health hazards.

We decided that the new program would include biweekly rubbish collections from residences only. The practice of disposing of the material at an open wet dump will be continued temporarily. Garbage is still collected by a hog feeder under contract with the city.

To expand our street cleaning program at the same time as the rubbish-collection service made it practical to hope and work for cleaner streets. We purchased two Wayne sweepers to replace older machines because maintenance of the belt conveyor system of the old units is costly, particularly when used on streets with rough gutters and uneven cross-sections. We kept one of the older models to work on the better streets. With the new equipment and an expanded sweeping schedule, we increased the sweeping by 88% with only a one-third increase in operating expense.

Based on a survey of municipal rubbish collection experiences of other cities and known facts of our own community, we made the following conclusions:

1. There are 15,000 pick-up points in the city.
2. One truck can handle 360 pickups per day, or 3,600 in 10 days.
3. On this basis, 4.16 trucks would be needed to cover the city in two 5-day work weeks.
4. The fifth truck could spend part of each day collecting street sweepings and litter-barrel rubbish.
5. A sixth unit would be necessary as a spare to keep the schedule going in case of breakdown.

Ten Districts

The setup for vehicles, men, and districts was based primarily on an estimate of the anticipated weight and volume of rubbish to be collected throughout the city in one complete collection. There was no foolproof way to district the city so that the trucks would finish at the same time each day. However, six years of experience with the back-breaking spring clean-up program provided valuable knowledge for estimating the volume of rubbish generated in the various sections of Portland.

Left:
Street Superintendent Frank W. Bryant, Earl Jensen, the author, and Sanitation Supervisor John Donovan (left to right) inspect the new refuse collection equipment.

Right:
Rubbish collections are made from residences only using the curb pick-up system. February storms caused a slight drop in the volume of rubbish normally collected.

Refuse Collection Service

Each of the ten districts is subdivided into five truck routes. One route in each district is smaller than the others, permitting the truck assigned to that route to collect street sweepings and the contents of public trash barrels placed in the shopping areas.

To avoid costly overtime, the city council ruled that when the normal collection day falls on a holiday, the residents of that route will simply wait another two weeks until the next regular collection day.

The crews are not relieved early on the light collection days. On such days the men and trucks do fall leaf-collection work, snow removal around catch-basins, collection of street sweepings and cleaning of the rough cobblestone gutters. The crews are also responsible for washing their truck at the end of each working day and are particularly proud of their equipment.

Six-Month Resume

Equipment purchased for this program consists of six R-192 International trucks mounted with 16-yard Gar Wood Load-Packer bodies at a total cost of $45,948. Actual collection work started for most sections of the city on September 19, 1955. During the first three months, the Load-Packers carried 1,613 tons of material, including street sweepings, to the two dumps then in operation. Many people did not fight the heavy winter snows to put their refuse out at the curb for collection, thus reducing the load for the next three months to 1,436 tons. Collections are now averaging about 45,000 pounds per district with the less populated areas contributing approximately 35,000 pounds per day.

Operating cost for the remainder of 1955 amounted to $13,636. The 1956 budget provides $50,440 for operating the rubbish-collection service. Operating costs for the six new Load-Packers, exclusive of personnel services, averaged about 45 cents per hour or 12 cents per mile during the first three months of operation. This includes gasoline, lubrication and hydraulic oil, antifreeze, maintenance, and repairs.

Each truck is staffed with a driver and two laborers. They are supervised by a foreman who heads the Public Works Sanitation Division and is also responsible for street cleaning and dump operation.

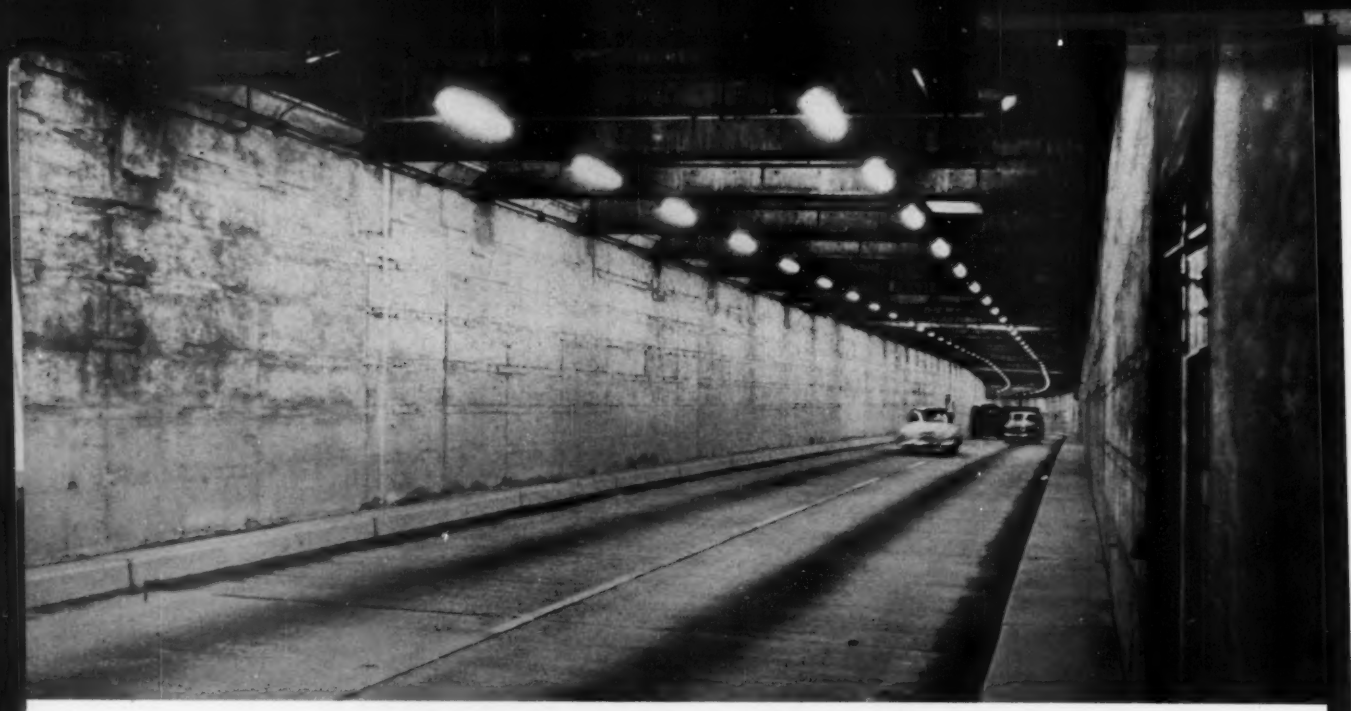
Present records indicate that the new service will cost less than $9 per ton for 1956, including the extra work done after residential collections are all completed for the day.

Since municipal refuse collection was something new to Portland residents, we made an all-out effort to inform the people about the program before its actual beginning on September 19, 1955. For a week before the first collection day, the trucks covered each of the routes distributing pamphlets to each householder. This also gave the men an opportunity to become familiar with the routes and the vehicles.

Public Relations Pamphlets

The pamphlets told when the rubbish would be collected, where the containers were to be placed for collection, what materials would be taken, and how the rubbish should be prepared and set out. At the same time, pamphlets were also distributed setting forth instructions for the storage and collection of garbage. Extensive newspaper coverage and radio and television broadcasts explained the program.

In our estimation, the program has progressed very smoothly. Only a handful of complaints have come in since the start of the collection service, chiefly from those who place their rubbish out after the collection has been made.



Fresh air for motorists is guaranteed in Seattle's new vehicular subway.

Safety Stressed In Seattle's Vehicular Subway

Automatically controlled mechanical ventilation and other safety devices protect motorists in 2,146-foot tunnel

By H. WARD TYLER
Principal Engineer
Engineering Department
Seattle, Wash.

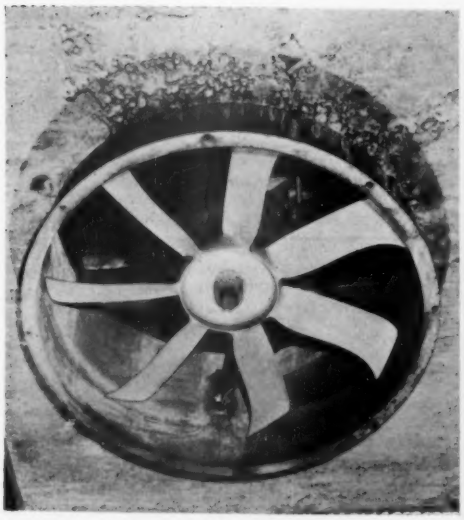
FOR a period of 12 hours every day, including Saturday and Sunday, motorists passing through Seattle's new four-lane vehicular subway are under the constant protection of automatic devices. Only during the hours of 7:00 a.m. to 7:00 p.m. on Mondays through Fridays is the tunnel supervised by an operator.

The subway, which is part of the Alaskan Way Viaduct project, provides a freeway facility under seven heavily traveled surface streets connecting the Alaskan Way Viaduct with Aurora Avenue as part of the State Highway System through Seattle. It consists of two roadways, each 25 feet wide plus emergency walks, that carry two lanes of traffic in each direction. The roadways are separated by a solid dividing wall.

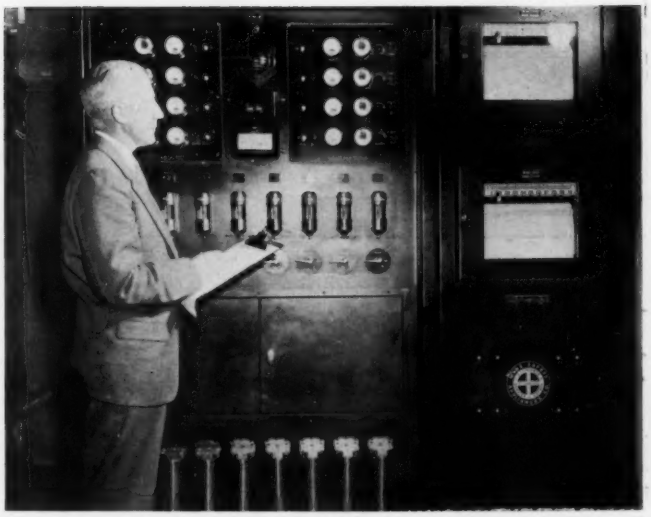
The large number of small fans drawing air directly from and discharging to the surface street above the tunnel represent a radical departure from the standard practice of using central blower plants. Each roadway has 36 axial flow fans, 33 inches in diameter and driven by 3-hp, 1150-rpm motors, capable of delivering 15,500 cubic feet of air per minute, furnished by Aerovent Fan Co., Piqua, Ohio. Air taken from the sidewalk area of the surface street is blown into the tunnel with sufficient velocity to thoroughly mix with the motor vehicle exhaust gases. The contaminated air is exhausted by natural means through openings located in the ceiling along the center wall.

Eight sections of nine fans are automatically controlled, through a central control panel, by carbon monoxide analyzers placed in each section. The analyzers were developed by the Mine Safety Appliances Company of Pittsburgh, Pa. Continuous air samples are taken from eight pick-up points located at breathing level and carried through copper tubes to the analyzer cabinet. Here the air sample is dried, heated, and passed to a detector cell containing a thermopile embedded in a catalyst called "Hopcalite."

In the presence of this catalyst, carbon monoxide is oxidized to carbon dioxide in an exothermic reaction. The thermopile generates an electromotive force in direct proportion to the carbon monoxide content of the air. This force is indicated on a meter and also is printed on a continuous graph on recording potentio-



One of 72 fans that are available to bring fresh air into the subway should the need for it arise.



The author notes instrument readings of the carbon monoxide recorders that have been developed by Mine Safety Appliances Co. of Pittsburgh, Pa.

meters. When the concentration of carbon monoxide reaches 1.5 parts in 10,000 for any section, the potentiometer closes a mercury switch and relay to start the nine fans located in that section.

Although each pick-up point and analyzer controls the fans in its respective section, the device will actuate all four banks of fans in that roadway should the carbon monoxide content reach 3 parts in 10,000. In this case all fans will continue to operate for two minutes or until the carbon monoxide content again drops below the critical point. Should the fans fail or the carbon monoxide content reach 6 parts in 10,000, another mercury switch actuates a number of neon STOP MOTOR signs along the tunnel sidewall and a flashing red signal and SUBWAY CLOSED sign at the entrance. To date, these signs have never been energized as a result of high carbon monoxide concentrations.

Severe Test

After construction work on the subway was completed and before it was opened to traffic, the subway ventilation system underwent a full-scale test. Enough cars and trucks were stopped in one roadway to fill both lanes in a simulated traffic jam. On signal, the drivers turned on all motors and ran them at idling speed for 30 minutes.

During this period ten observers stationed at critical points took readings at 10-minute intervals with portable colorimetric carbon monoxide testers. Additional samples were taken in vacuum bottles furnished by the United States Bureau of Mines for laboratory analysis. The fixed carbon monoxide analyzers also printed a record of the test from the four pick-up points. After the 30-minute idling period, drivers were instructed to accelerate as rapidly as conditions would permit in driving out of the subway. Each observer took another air sample as the last vehicle passed him.

Results from samples observed at the time of the test showed an initial build-up of carbon monoxide which reached a maximum of 4 parts in 10,000 before the fans started. It was reduced immediately, becoming uniformly stabilized at 2 parts in 10,000 throughout the subway. Initial build-up was caused by the time lag required for air samples to reach the control chamber and pass through the analyzers before fans were turned on. The acceleration test failed to show any marked increase in contamination of the air in the tunnel.

Additional safety features of the subway include portable fire extinguishers, emergency telephones, and an automatic sprinkler system.

As far as we know, the sprinkler system is the only one in existence in a tunnel-type vehicular facility. Fourteen separate 6-inch systems equipped with open-head deluge-type sprinkler nozzles are under automatic rate-of-rise and fixed temperature control. They can also be manually operated from inside the subway. This system was supplied by "Automatic" Sprinkler Corporation, Youngstown, Ohio.

Experiments in temperature settings were conducted to prevent their accidental release by a diesel truck stopping under the heat-actuating device. To date, no fires have actually occurred to prove the value of this protective equipment.

Fire extinguishers are placed in cabinets recessed in the center wall. These units, located every 325 feet throughout the tunnel, provide an effective means for combating gasoline fires. Emergency telephones are also spaced at 325-foot intervals and provide a direct connection to the police alarm board.

Small Fan Advantages

Central blower plants usually require large standby units as security against failure of one of the main blowers. In the case of a large number of units such as the 72 fans installed in the Seattle Subway, the failure of one or even several units does not materially affect the safety of the system. Fans and motors are directly connected and can be removed and replaced from the sidewalk of the surface street in a short period of time. As a precautionary measure, we have purchased five extra units for replacement purposes. This represents the only investment in standby equipment.

Municipal Public Relations

The City Tells Its Story

Edited by PAN DODD WHEELER
Executive Director, Government Public Relations Association

Dependability Gets Results in New Orleans PR Program

PEOPLE of New Orleans, city officials and employees, and the media have come to depend on us for specific services. We believe a city public relations office is here to stay.

That's how Glen Douthit, director of the New Orleans, La., Office of Public Relations, feels on his office's tenth anniversary. He's confident that the city's PR operation has passed the "need" test.

New Orleans Office of Public Relations consists of a director, assistant director, a public relations secretary, and two stenographers. Money to operate the unit comes from the amount budgeted for the Office of the Mayor. Organizationally, OPR is responsible directly to the mayor.

A close look at the 10-year-old unit of New Orleans' city government shows what factors have made it click and given it staying power.

Success Factors

First, and important, is that the philosophy of the OPR operation is clearly defined. "The public relations office at city hall," says Mr. Douthit, "is a basic factor in keeping the citizen a part of the city. Our work—to integrate citizens into city government—is proof to them that the city government is concerned with this. It is the prime purpose of OPR."

A second and equally important factor, is top-level insistence on good public relations and the need for professional PR direction. "Many public officials," Mayor deLesseps Morrison believes, "deprive themselves and their city of a full measure of success through modesty or lack of public relations known-how. One of my first tasks when I became mayor was to set up a public relations office . . . to help me use the tools of good public relations wisely."

Another factor is that the public relations office is not a single channel through which all information must be released and all public contacts made. The work of OPR and of a half-dozen public relations and information officers in other units of the city government complement one another. Official statements to press and public are issued through OPR. But city officials and department heads can and do have direct contact with the press. Assistant PR Director Winston Lill says that OPR "decided at the beginning not to be a 'censorship outfit' and the decision has paid off in good press relations."

The public relations office is established at top policy level. Its director and assistant director have status within the city government. The press, other media, and the citizens recognize that when information is provided by OPR it is accurate, legitimate, and official. In this climate, a public relations office can function with authority and dispatch.

Experienced Personnel

OPR is staffed with people experienced in public relations. David McGuire, its first director, is a former newspaperman with an educational and experience background which suited him for the post. He is now Chief Administrator for the city. Current Director Douthit was formerly assistant to Mr. McGuire and had covered city hall for a New Orleans newspaper. Assistant OPR Director Lill came to city hall with experience in advertising and business public relations.

Still another factor in the ten-year test results is that OPR has devised down-to-earth ways to reach its goal of establishing rapport between city and citizen. It has not, for example, urged New Orleans people to come to city council meetings. People did not—and still do not—throng to council sessions. Today, citizens do know a great deal more about the city government than they have ever known. PR activities—like the city-wide bus tours, the public works dedications, and the municipal reports—provide citizens with new avenues of receiving information from and of offering suggestions to city officials.

What OPR Does

Specifically, here's what the New Orleans PR office does. The director and assistant director participate in weekly staff meetings with the mayor at which policy decisions and plans are made. The PR men consult frequently with the mayor and other city officials on the public relations aspects of various city projects.

OPR lets the newspapers know when news is coming up, suggests coverage possibilities, provides written background material, and releases some ready-prepared stories. It telephones radio stations about feature news. It writes, when there's advance information, or telephones for spot news coverage to the two TV stations when something with visual interest is available. For example, Mayor Morrison was one of three U. S. mayors presented with a key of honor to the Paris International Trade Association this spring. A presentation ceremony was arranged in the mayor's office and TV stations were alerted. Both covered the event for local newscasts.

OPR helps with a weekly television show featuring the mayor. The format calls for a two-minute statement on a current city government development by the mayor. This is followed by an 11-minute off-the-cuff interview during which

two newsmen question the mayor. This part of the program is spontaneous and never unrehearsed.

OPR writes and designs a *"Life-sized"* annual report and arranges for newspaper, radio, and TV coverage of it. This year both New Orleans TV stations filmed special council ceremonies at which the mayor reports verbally. All 11 local radio stations carried the proceedings live or taped them for later use. A filmed report supplements the printed and verbal reports and is used throughout the year.

Dedication Ceremonies

Considerable OPR energy goes into dedication ceremonies. These are arranged for pile-drivings, groundbreakings, and at the completion of projects. "The city holds them," Mr. Lill points out, "not to get a crowd together nor to pat itself on the back. Dedications, and the arrangements for them, provide individuals and neighborhood groups with a chance to work with the city government in a personal way. These focus attention on public works improvements in which citizens have had a part."

How OPR organizes a dedication is exemplified in the Paris Avenue Extension and Beautification Dedication, which took place May 20. OPR arranged the program with the Paris Avenue Improvement Association and 14 other area groups. It included a motorcade, presentation of a queen and her court, short talks by neighborhood leaders and city officials, music by a New Orleans Police Band, awarding of certificates of appreciation, and the ribbon-cutting which officially opened the new section of Paris Avenue. OPR mimeographed programs and invitations. These were mailed to an OPR listing of 450 community leaders and to every household in the improvement neighborhood. Appropriate news releases were provided to all media.

Helps Mayor

For the mayor, OPR answers letters of a routine nature. It writes many of his speeches and will prepare talks for other city officials on request. Mr. Douthit is the city's official representative on various boards and commissions and acts for the mayor in these positions. Mr. Lill also fills this role in certain groups. OPR issues proclamations for the mayor upon written request from "any legitimate group." It arranges for presentations of keys to the city, certificates of honorary citizenship, greetings for convention groups, and courtesies for visiting heads of states and other official guests of the city.

"The Office of Public Relations quarters will be right here," Mayor deLesseps (Chep) Morrison (center) tells Public Relations Director Glen Douthit (right) and Assistant Director Winston Lill (left). The trio is looking over the new city hall to be completed this fall. OPR will have well-located, adequate facilities in the structure.

Down-to-earth objectives, professional know-how, and a small staff (the five pictured here) combine to make New Orleans' Office of Public Relations an accepted part of the city government. It has come of age this year—its tenth. City officials, the press, and the people look upon its activities now as an essential function of the city.

OPR works hand-in-hand with the convention and visitors bureau of the Chamber of Commerce, the International Trade Mart, the Port of New Orleans, International House, and the Navy public relations office. It functions in cooperation with public relations officers in the police department, the safety division, fire department, civil service office, housing improvement division, with the mayor's executive assistant, Bob Wall, and aide, Charles Erdman.

Of elementary importance in an evaluation of New Orleans' MPR is the fact that the public relations office has operated as part of a dynamic municipal program. The city government's program has involved administrative revisions, modernization of departmental organization, and vast public works improvements.

The OPR has not been placed in a position of trying to make something look good. New Orleans' ten-year PR experience emphasizes that MPR is no cover-up for inadeqate administration. It can, however, strengthen good administration.

Eight community manufacturing centers and two harbor-edge centers are proposed patterns for industries in the Brooklyn of tomorrow.

Eight community centers for light manufacturing and two river-edge centers for heavy manufacturing are proposed in this student-designed industrial relocation scheme for Brooklyn, N. Y.

New Patterns for City Industrial Location

INDUSTRIAL centers, similar to today's integrated shopping centers, are proposed as locations for all future manufacturing plants in the Brooklyn of tomorrow. The proposals are contained in city planning designs recently completed by three architectural students at Pratt Institute, a well-known design school in the New York borough. The students, who submitted the designs as a thesis for their Bachelor of Architecture degree, are Stuart Cohen, Stanley Kogan, and Frank Marcellino.

Ten industrial centers are called for in the plan. Eight would be devoted entirely to light manufacturing operations. These would be located on sites consisting of between eight and ten blocks. As in the modern shopping centers, off-street parking facilities would be situated at the fringes of the factory building groups. Pedestrian and truck circulation patterns within the centers would be carefully separated on different levels. Open areas—some of them planted with grass and others in the form of malls and plazas—would separate groups of buildings thus giving the centers an open and spacious, uncluttered atmosphere.

The centers, which the plan interspersed throughout the 2,738,000-person section of New York City, would be located within walking distances of the majority of the future Brooklyn residents. By placing the factories near the homes, the designers expect to tap the growing supply of part-time workers. Thus wives with children of school age could be employed easily to supplement family incomes at times when their children are in school.

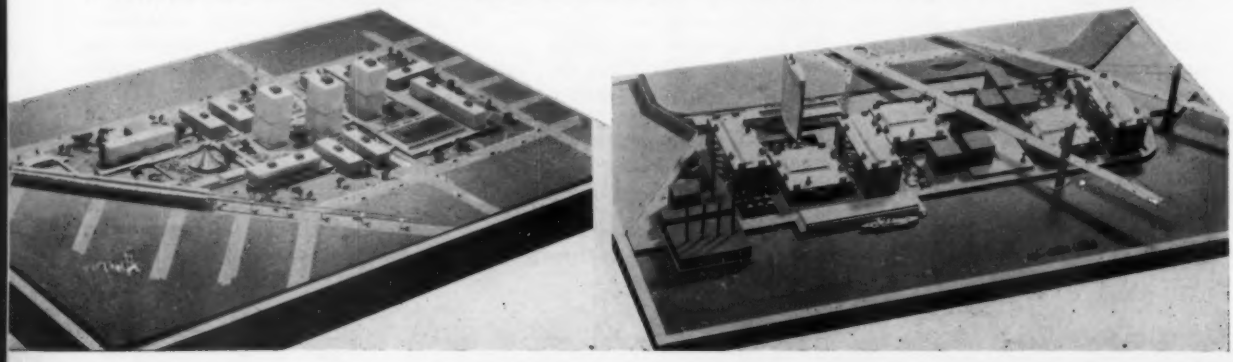
Heavy industries would be grouped in two centers, which would be located along New York Harbor or the East River where the bulk raw materials or bulk products involved in the manufacturing processes could be handled best. Obnoxious or dangerous industries would also be confined to the heavy industrial areas.

The centers, which would be built and financed by private investors in much the same way that large-scale shopping centers are developed, would provide rental space to both small and large manufacturers. Buildings would be so designed that floor areas could be partitioned among several manufacturers or devoted entirely to a single entrepreneur. This flexibility, the designers claim, is best suited to the manufacturing pattern in Brooklyn, where industrial operations are often begun in a small way and then expanded when firmly established.

The plan was based on a three-month study of local industrial conditions and trends in Brooklyn. The students have suggested that their proposed redistribution of industrial locations be carried out as part of the physical redevelopment of blighted and run-down areas in Brooklyn. A further step in putting the plan into effect would involve a wholesale rezoning of the borough which would designate the proposed centers as the only legal locations for industry.

Architects and city planners called in to judge the student work praised the plan as a bold one that was not beyond the realm of possibility in an age of large-scale urban redevelopment. Predictions that rising standards of living in the United States would provide greater resources for big-scale urban improvement in the future were cited as reasons supporting the validity of such bold thinking.

Model of prototype community industrial center (left) designed for Brooklyn by graduating architectural students at Pratt Institute. Heavy manufacturing operations involving bulk raw materials or bulk products would be in center such as this (right).



Skyparking in Business Districts

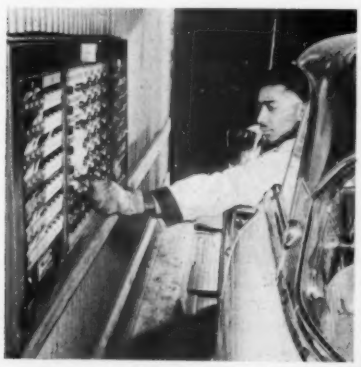
THE first garage with a Bowser parking system was opened in October 1951 and reported in THE AMERICAN CITY for November 1951. It is owned by the City of Des Moines. How it operates (24 hours a day) and how all the Bowser-system garages erected since then operate is told in the pictures on this page taken in one of the three Bowser skyparks owned by Chicago.

In Oklahoma City the First National Bank garage is being built with the Bowser parking system for 500 cars on 13 floors adjacent to offices. A Mexico City hotel has a Bowser system garage where motorists park their cars on the same floor as their rooms. For the future there's nothing to prevent a floor of garages and three or four floors of apartments, remarks Jim Bowser.

Costs are best obtained from Bowser Parking System, Inc., 112 S.W. Second Ave., Des Moines 9, Iowa. The reported figure is $1,325 per stall, including $550 for the elevator equipment. Recommended minimum capacity is 225 stalls, maximum 650 stalls. A larger garage will cause traffic congestion in the streets during rush hours. The system is sold outright with 90 days' service and one year's guarantee.

A motorist drives into receiving space, gets receipt. Stub goes by pneumatic tube to cashier . . .

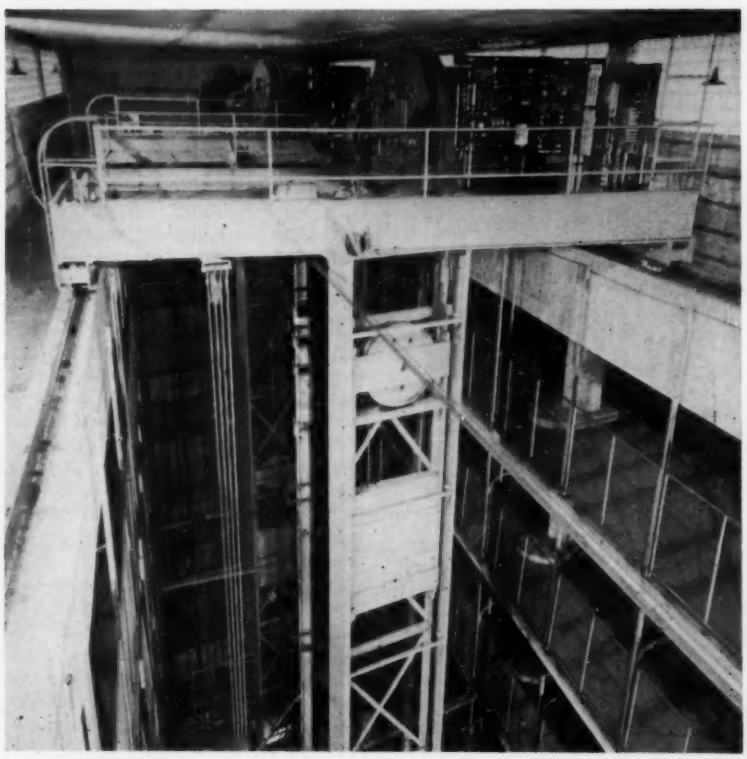
. . . who inserts receipt into panel pocket, thereby lighting a lamp on the panel board of the attendant . . .



. . . who then drives car into elevator and pushes button for floor and stall indicated by cashier's signal. Then the . . .

Bowser Elevator Parking Garages

	Floors	Cars per Floor	Elevators	Employees	Owner
Boston	13	18	2	4	Brook Realty Co.
Chicago No. 1	12	60	5	8	City of Chicago
Chicago No. 5	8	60	4	7	City of Chicago
Chicago No. 8	12	45	4	7	City of Chicago
Dallas	13	36	3	6	Cary-Schneider Invest. Co.
Denver No. 1	10	48	4	7	City & County of Denver
Denver No. 2	10	48	4	7	City & County of Denver
Denver No. 3	10	48	4	7	City & County of Denver
Des Moines	9	45	3	6	City of Des Moines
Houston	9	30	3	6	Medical Arts Garage Co.
Houston	10	48	4	7	South Texas Natl. Bank
Oklahoma City	12	42	4	7	First National Bank
Oklahoma City	13	45	4	7	Liberty National Bank
Wichita Falls, Tex.	13	54	3	6	Hamilton Building



. . . combination elevator and bridge crane transports the car automatically to the indicated parking stall.

With these I.B.M. electric typewriters using Standard Register continuous forms, production of accident-control cards has been tripled since California started enforcing its financial responsibility law.

Punched Paper Doubled Typing Output of Accident Records

By HAROLD I. HOBBS
Office Supervisor
Department of Motor Vehicles,
Financial Responsibility
State of California
Sacramento, Calif.

KEEPING track of the rate at which drivers are killing and injuring themselves and others or damaging their automobiles has, unfortunately, become a mass production chore.

In the State of California, which leads the nation in licensed motor vehicles, between 30,000 and 40,000 persons are involved in major accidents every month.

By *major* accident we mean one involving death, injury, or property damage in excess of $100. These are the limitations which bring into force California's financial responsibility law. When an accident falls in this category the driver or drivers are required to contact the California Highway Patrol within 24 hours if there has been an injury, and to file a written report with the Financial Responsibility office of the Department of Motor Vehicles within 15 days if the accident involves bodily injury or property damage in excess of $100.

In our Sacramento office, then, the financial responsibility section is charged with seeing that persons involved in accidents have insurance which complies with the law or requiring them to post a bond covering their legal obligations. Our law requires $5,000 in responsibility for injury to one person, $10,000 for injuries to more than one person, and $1,000 to cover property damage.

The volume of accident reports passing through our office runs as high as 1,800 per day. On the average, 1.7 reports are filed for each accident, with the great majority involving two drivers and two reports. For our work, it is necessary that all reports on a given accident be filed together.

Index System

We handle this matching through a specially worked-out indexing system. Our central key in this job is the date of the accident. Case numbers—used to identify all accidents—are assigned on the basis of using the first four digits to represent the date and four more for consecutive numbering.

After case numbers have been assigned, we encounter our most difficult clerical chore—creating the cards which will serve to control our actions in disposition of the case. It takes three 4-inch by 5-inch index cards identifying each driver to complete our functions. These are used as follows:

One copy is sent to our drivers' license division, where it becomes a part of the driver's application file. The second copy goes to an active follow-up file, where it is held until the driver clears himself as provided

by law. While it is in active status, this card is kept under a tight action control system in Remington Rand Kardex equipment. When it reverts to inactive status, this card is transferred to a conventional vertical file where it becomes a permanent part of our working history. The final card is attached to the accident report file itself.

Work Volume

With work volumes running to 2,500—and sometimes more—of these index cards to be prepared in a single day, it is understandable that this job became the major clerical bottleneck threatening the enforcement of our financial responsibility law.

At about this time, a forms specialist from The Standard Register Company, of Dayton, Ohio, learned of our dilemma. Merely by making slight design changes and putting the records on Kant-Slip continuous marginally-punched forms, he was able to help us introduce a system which has doubled the output of our typists. Specifically, it was noted that the great majority of accidents involved two drivers. So, our new forms were made up in the width of two 4-inch by 5-inch cards, making it possible for the typist to lay the accident reports side by side and increase her production speed 25% just by eliminating half the work of line feeding the typewriter to advance the forms.

More important savings, however, were realized in the adaptation of the Kant-Slip continuous forms. With disposable carbon paper already interleaved in the forms, all prehandling was eliminated. When the typist finishes writing one Kant-Slip form, she has merely to space her typewriter up and the next one is ready to go.

The active copy of the accident index card is kept in a Remington Rand Kardex file controlling some 150,000 cases which are usually pending compliance with financial responsibility statutes.

Immediate Result

The immediate result of this changeover was a production increase of a full 120%, using the same manual typewriters as previously but equipping them with Registrator Platens to accommodate the new forms. From an average production of 250 index cards a day, the rate jumped immediately to 550. Two typists could then be released to other important duties department.

Production experience in this initial changeover encouraged the department to install electric typewriters for this job. Again, production jumped. This time our average output increased from 550 cards per day to 700. Using the electric typewriter, one operator has been able to put out as many as 933 cards in a single working day.

NAME	NAME
ADDRESS	ADDRESS
CITY	CITY
DATE OF BIRTH	DATE OF BIRTH
ACCIDENT DATE HOUR	ACCIDENT DATE HOUR
ACCIDENT LOCATION	ACCIDENT LOCATION
IN OR NEAR	IN OR NEAR
NAME	NAME

This accident-report form proves convenient when two parties (cars or car and pedestrian) are involved.

Americus cleaned up its streams with the aid of two sewage - treatment plants. This is a view of Muckalee plant, the larger of the two.

A Pair of Plants Proved Wisest

Americus, Ga., analyzes all factors and finds a two-plant solution to its sewage-treatment problems

By JOHN W. FLATT, *Public Health Engineer*
Americus, Ga.

The Willet Branch plant, the smaller of the two, treats domestic sewage from a residential area separated from the rest of the city by a high ridge.

FOR a city of approximately 12,000 inhabitants to construct two sewage treatment plants at one time is certainly an ambitious undertaking. And when one considers that the planning and construction of the program took place through two city administrations and required the doubling of water rates to pay for the project, all without severe complaints or loss of public support, the accomplishment becomes all the more remarkable. The City of Americus, Ga., carried out such a program, and the credit belongs to the city officials, the Americus and Sumpter County Health Department, and many interested civic groups and individuals.

Although today Americus has a modern sewage-disposal system, it was only two years ago that some of the most unsanitary conditions could be found along the creeks flowing through the outskirts of the city. It was this condition that aroused the public to the real seriousness of the situation.

Though incorporated since 1831, it was not until 1896 that the city began construction of its first main sanitary-sewer collection system. In 1912 the sanitary-sewer system was expanded to cover the major portion of the city. Through the years, extensions were made as the city grew and finances permitted, but no effort was put forth to correct the dumping of raw sewage into Town Creek and Muckalee Creek, two small streams that flow along the edge of the city.

A major problem developed in 1951 when construction of the new

Manhattan Shirt factory sparked the growth of several subdivisions in the east and southeast section of the city. This area is separated from the rest of the city by a high ridge, requiring additional trunk lines and new disposal sites. The Board of Health objected to any additional dumping of raw sewage into the streams around the city, but did permit construction of a septic tank in the Willet Branch area. This septic tank was to serve only until an adequate study could be completed and the necessary facilities constructed to eliminate the dumping of all raw sewage from the city into the streams.

Bond Issue Approved

The year 1952 can be considered as the birth of the Americus cleanup program. Early that year the city engaged the firm of Wiedeman and Singleton, Engineers of Atlanta, to prepare a preliminary report on sewerage system improvements. The report was completed in June of that year, and on February 13, 1953, the Americus-Sumpter County Board of Health notified the City Council of Americus that the report was completed and approved by the State Health Department for technical requirements.

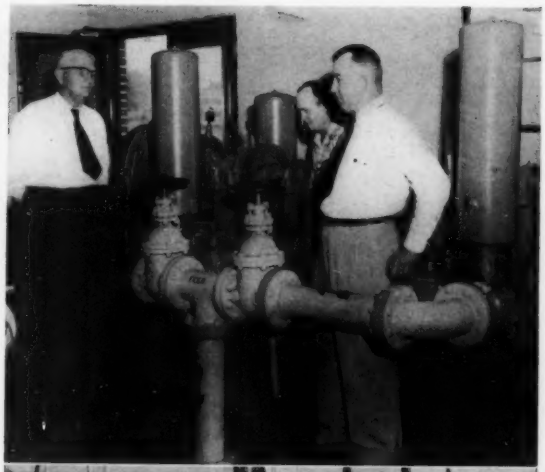
Following a series of talks and films on the subject presented before various civic groups by the health department, the mayor and city council voted to follow the Board of Health recommendations and took the necessary steps to issue water and sewer revenue certificates amounting to $825,000. The consulting engineers were instructed to prepare final plans and specifications for an early 1954 contract award. Actual awards were made in April 1954 covering three major jobs; the two treatment plants and various trunk lines and connecting sewers. The plants were placed into service in May 1955, and the sewers were completed in December of that same year.

Two Plants

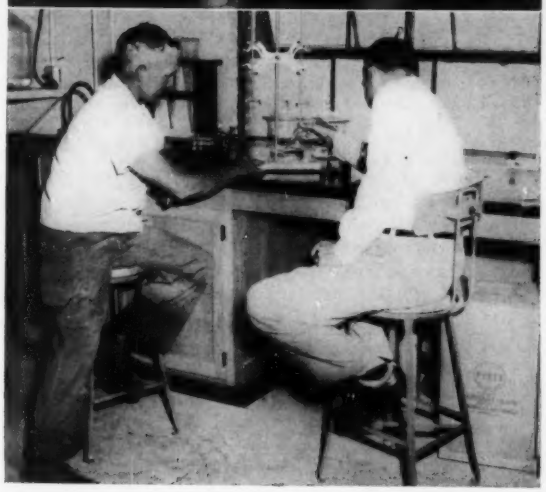
Muckalee Plant, the larger of the two, is designed to handle 1.2 mgd (million gallons daily) and the Willet Branch plant has a daily capacity of 200,000 gallons. Under normal growth, the two plants should be capable of handling all city sewage for the next 30 years without the need for plant additions.

Sewage entering the Muckalee plant first passes through two Duplex 15M Chicago Pump Company comminutors before entering the collection well. Three Pacific Pumping Co. pumps then lift the sewage from the well to the primary settling tank. Two of the pumps are rated at 1,200 gpm and one at 700 gpm; they are driven by 15-hp and 10-hp Elliott motors, respectively. The sewage then flows by gravity from the primary tank through two 350-gpm dosing syphons into two 114-foot-diameter trickling filters. After leaving the trickling filters, the sewage passes through the final settling tank and is then discharged into Muckalee Creek, located a short distance from the plant.

Two Yeomans double-stage sludge pumps, each rated at 9,000 gph and powered by 5-hp Allis-Chalmers motors, transfer the solids from the primary settling tanks to the digester. Sludge from the final clarifier is pumped to the digester by two 80 gpm Pacific Pumping Company units. These are centrifugal sludge pumps driven by 5-hp Elliott electric motors.



Members of the Americus City Council Water and Sewer Committee, (left to right) A. B. Woodard, C. B. Austin (Committee chairman), and M. C. Wall inspect mechanical equipment at the Muckalee plant.



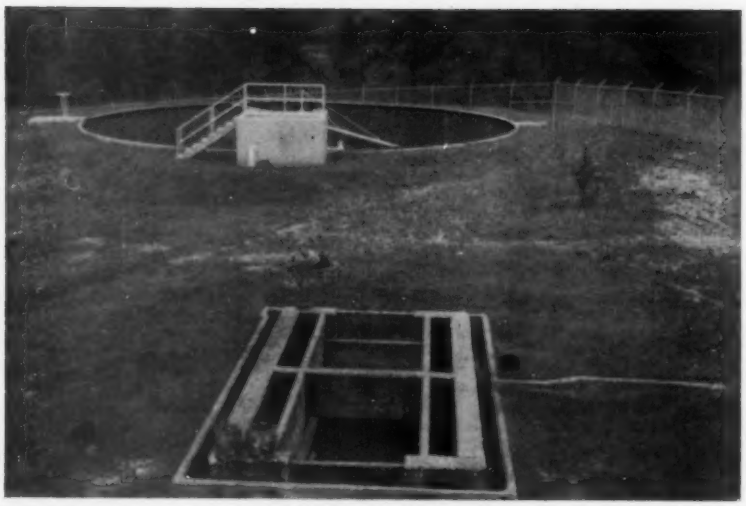
The author (left) and Superintendent Broadhurst test final effluent samples in the new plant laboratory.

The American Well Works Company supplied the mechanical equipment used on the primary and final settling tanks and the two trickling filters. The settling tank equipment includes telescope valves and drag-link flights.

The digester is equipped with a Pacific Flush Tank floating cover and supernate selector. A PFT heat exchanger, utilizing gas produced in the digester, provides heat for the digester and control building. Two 150 gpm Pacific Pumping Company sludge-circulating pumps with 5-hp Elliot motors circulate the supernate through the heat exchangers. Excess gas is burned in a waste gas burner. A Republic Instrument Company flow meter records the amount of sewage passing through the plant.

Similar Equipment

Equipment used at the Willet Branch plant is similar to that at Muckalee, but of smaller design and



This 61-foot-diameter trickling filter provides final treatment to sewage at the Willet Branch plant. An old Imhoff tank, now abandoned, is in the foreground.

with fewer units. Here too, the sewage flows by gravity through a Comminutor, Model 10A with 7-inch drum, to the primary settling tank. Two American Well Works sewage pumps transfer the primary effluent to the trickling filter. These units, driven by a 3-hp Howell electric motor, are rated at 250 gpm each. Drag-link flights skim the floating solids from the water surface and also push the sludge into the receiving hopper at one end of the tank. From the settling basin, the sewage flows through a 61-foot-diameter trickling filter into the final tank. Mechanical equipment for these units was also furnished by the American Well Works Company.

Solids removed from the sewage in the settling tanks are transferred to the digester by a 3-hp single-stage Marlow sludge pump. This plant has a fixed-cover digester with a waste-gas burner to dispose of digester gas. The purified sewage is discharged into the creek adjacent to the plant.

Approximately $130,000 was spent in constructing the Muckalee Creek outfall sewer and various connecting sewers to collect sewage from an existing septic tank and several newly developed areas. These sewers ranged in size from 8 inches to 30 inches in diameter. All told, 30,100 lineal feet of sewers were included in the project.

The Muckalee plant cost approximately $365,000, and another $86,000 was used in constructing the Willet Branch plant. An additional $170,000 of the bond money was used to pay off certificates outstanding at the time of the new issue. The remaining funds were used to dig new wells, lay water lines, and purchase rights of way.

The new sewage treatment plants are operated by Frank Broadhurst, superintendent, and Ray Tyler, his assistant. The program was started under the administration of Mayor F. P. Bowen and completed under the present administration of Mayor J. E. Logan.

Any paper that slips by this fence will be trapped by two others in back. A little treatment by the weed burner (right) clears the fence in very short order.

Paper-Catcher Fences

CHEYENNE, Wyo., has been using the sanitary landfill for the past several years, but has been troubled by blowing paper. The winds are strong in this part of the West, and residents more than a mile away have found waste paper on their front lawns.

To correct this, Commissioner A. W. Trout, Sr., arranged for the construction of three fences spaced several hundred yards apart. Any paper that escapes the first fence is trapped by the second or third. A man with a Propane-fueled Blue Flame weed burner periodically destroys the trapped trash. One $2 filling of Propane lasts from 6 to 8 hours. Paper can be burned from the fence as fast as a man can walk.

Much of the trouble resulted from having to dump the debris from the business district away from the fill in order that scavengers, a holdover from the unsightly open dump, could sort through it. Since new homes have now sprung up within three blocks of the disposal area, the city has discontinued the salvage privilege.

PHOTOS BY HUGH BATES

In the early morning, the flusher and sweeper are at work on Cheyenne streets. Note Dempster hoisting unit in background.

Cheyenne Flushes Streets First

City teams a flusher with a sweeper to keep streets in clean condition

By A. W. TROUT, SR.
Commissioner of Public Improvements
Cheyenne, Wyo.

WE have found that the business district can be kept much cleaner at lower cost if the streets are first flushed and then swept. We send the flusher down the street at a speed of 15 miles per hour with a water pressure at 80 pounds. By flushing one side of the street at a time, the unit cleans both sides of five blocks, which are each 280 feet long, and returns to the filling point to get another 1,200 gallons of water. A circuit such as this requires 25 minutes. The flusher travels approximately 2½ miles per hour, stopping for traffic lights at all times except when actually flushing.

The power broom follows the flusher far enough behind to permit the excess water to drain away. It travels at a speed of 5 miles per hour. However, since traffic lights are not coordinated to this speed and a no-parking ordinance is not enforced in Cheyenne, the sweeper has to stop and start, and weave in and out around parked cars.

The flusher and sweeper operate in the main business district from 2:00 a.m. to 6:00 a.m. Outlying business districts and main thoroughfares are flushed and swept once a week during the summer between the hours of 5:00 p.m. and 9:00 p.m. Between 6:00 a.m. and 5:00 p.m., we keep the units busy cleaning streets preparatory to seal coating, removing excess gravel from streets freshly sealed, or cleaning residential

The sweeper picks up an empty detachable hopper and the truck hauls away a full one.

streets. We will clean residential streets four or five times during the summer. During the winter, the sweeper will pick up sand put out to prevent skidding on icy streets.

By flushing first, we can run the sweeper down the gutter and be sure of picking up all the debris on one side of the street in a single pass. Furthermore, if dirt and debris are a little "heavy," the sprinkler on the sweeper may be unable to apply enough water to keep down the dust. It also helps when flushing leaves to the gutter since the dampness prevents their blowing around.

Detachable Hoppers

Since Cheyenne has but one sweeper, we have to obtain maximum sweeping efficiency from it. We do this by sweeping within a specific sweeping area and by placing extra hoppers at convenient spots along the routes. We use the Dempster-Dumpster hoppers attached to the sweepers so that we never have piles of debris blowing around in the street. The Dempster-Dumpster hoisting unit then can pick up the hoppers at the driver's convenience. We also make it a point to have extra shoes, brooms, and diaphragms for the sweeper to keep it always in running condition.

The machine broom is followed by hand sweepers in the business area, who work from 2:00 a.m. to 10:00 a.m. sweeping debris from under and around parked cars. Debris is swept into piles to be picked up later by a crew with an open dump truck.

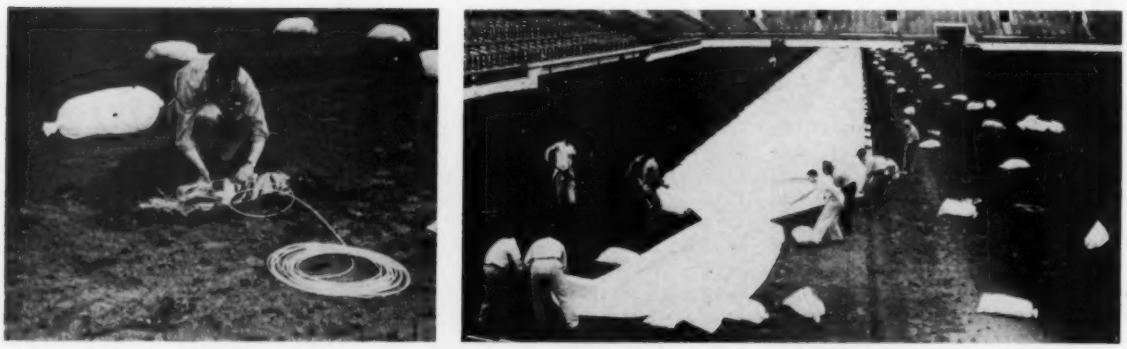
The sweeper, when used to help reseal streets, cleans the streets preparatory to seal coating, and it picks up excess gravel chips used to cover the asphalt. This accounts for about 200 broom miles per year.

The flusher also has the task of helping clear away leaves in the fall. All leaves are flushed to the gutter and almost the entire street-maintenance crew then hand-sweeps loads and hauls this debris to the disposal area.

Scheduling

Cheyenne, home of the famous Frontier Day Rodeo, has a population of approximately 45,000; it has 106 miles of streets with curbs and 75 miles of alleys. In the summer, the sweeper and flusher work 26 days per month on a 14-hour per day schedule. In winter, this is reduced to 18 days per month with a 6-hour day. The sweeper uses Calabar bass fiber in the rear broom and is able to get approximately 100 miles of service per broom. Our own forces fill the brooms. The wire gutter brooms will operate for 300 miles on one filling.

Better Way to Grow Grass



Treatment begins (at left) by making receiving basins for the chemical; the bottle over end of tubing breaks force of chemical as it issues from the tube under its own vapor pressure. The "pillows" hold the plastic sheet (at right) off the ground.

NEARLY every city has, somewhere, the problem of producing the strongest possible grass turf as quickly as possible. They may be areas subjected to unusual traffic. They may be plots of ground sidewalks adjacent to the county courthouse . . . parking areas between sidewalk and curb . . . the greensward before the band shell . . . park areas and areas along the foundations of buildings or around monuments.

Something New

The usual way is to cultivate the soil, leaving a tender, soft surface from which all traffic must be excluded. The principle objective of tillage is to reduce competition from weeds and old grass until the new grass gets a start. With a new method the tilling is not necessary to the growth of new grass. A chemical treatment kills the old, deteriorated grass, weeds, weed seeds, foliage insects and soil insects, nematodes, and other pests, leaving an ideal situation for the new grass. The grass seed is planted into the old grass. As the old grass dries and decays, it provides protection for the young grasses, permitting moderate foot traffic without harm, preventing wind and water erosion, and greatly reducing mud.

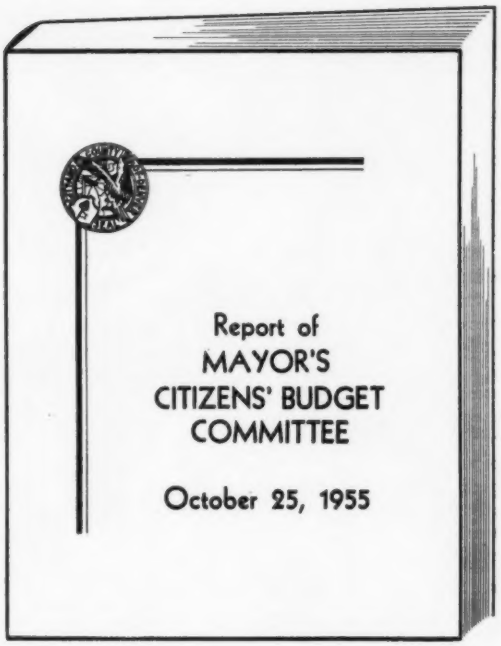
The active material upon which the new process is based is a rapidly evaporating liquid chemical mixture called Dowfume MC-2. It must be confined by covering the area with a plastic sheet sealed all around to the earth. Under this plastic sheet, the chemical is introduced through tubing into evaporating pans. It evaporates, and the vapors spread to all enclosed areas of the ground. The process should be used only by professional workers acquainted with the chemical.

This method is, of course, no substitute for good soil condition, good drainage, adequate moisture, fertility, and the other requirements necessary for the production of healthy, lush grass.

Rx for a Budget Impasse:

Call in the Citizens

Denver's Citizens' Budget Committee to help educate the public on the high costs of government financing is a good illustration of a growing technique in budget preparation



By BELMONT WILKINS
Secretary, Mayor's Citizens' Budget Committee
Denver, Colo.

LIKE any thriving municipality large or small, Denver has its budget problems. In recent years, an unprecedented population growth has made it increasingly difficult to provide funds needed for the city's rapidly expanding public services. Inflated prices have also helped to bring the budget of the combined city and county government to approximately three times what it was before World War II. While Denver officials saw that the continuing growth would require further expenditure increases, our local citizenry clamored for a hold-the-line policy on taxes. It was obvious that an impasse was developing that threatened to jeopardize Denver's excellent standard of services.

Therefore, last year Denver's officials went directly to the citizens for advice and recommendations in the preparation of their 1956 budget. The result was a successful cooperative endeavor of direct citizen participation in the city's budget making. Not only did the final budget have the active backing of Denver's citizens, but taxpayers gained a thorough understanding of the high costs of financing their city government.

The people of Denver, through the Mayor's Citizens' Budget Committee came to revise the popular idea of holding the line on taxes. They came to learn that rising governmental expenditures and additional levies were justified if the city were to maintain its standard services. They voted for increases above the Budget Office recommendations, as, for example, they asked for $1,110,000 instead of $1,075,500 for park funds.

It all began in 1955, after Will F. Nicholson was elected Mayor of Denver. In his quest for better understanding and cooperation from his taxpayers in city government finance, Mayor Nicholson asked that a citizens' committee be formed, which would act in an independent status to assist the city government prepare its annual budget.

Citizens' Budget Committee executives discuss their report with Denver's Mayor Will F. Nicholson. Left to right: Belmont Wilkins, committee secretary; Richard E. Rhodes, committee co-chairman; Mayor Nicholson, and Arthur L. Baldwin, committee co-chairman.

85 Members

The outcome was the Citizens' Budget Committee formed under Arthur L. Baldwin, vice president of the Denver Chamber of Commerce and member of the Taxation Committee of the U. S. Chamber of Commerce, and Richard E. Rhodes, president of the Denver Trades and Labor Assembly, both of whom became co-chairmen of the 1955 committee.

The committee drew its 85 mem-

bers from 25 different civic, professional, labor and industrial groups. Any interested citizen desiring to participate regardless of group or affiliation was invited by public announcement in the daily newspapers to attend the meetings of the Committee. The response was surprising, and subsequently the total membership rose to over a hundred.

For its task of budget examination and preparation, the committee was divided into 16 subcommittees, which were assigned to study budget requests of the different governmental agencies. In staffing the subcommittees, every effort was made to use the special qualification of the citizen volunteers. For example, attorneys were assigned to examine court budgets and engineers were placed on the subcommittee studying public works budgets.

City Throws Open All Facilities

Mayor Nicholson went all-out in assuring the citizens that every city facility was open to them in their budget study. Subcommittee members were given ready access to all studies belonging to the City Budget Office. They were also given detailed explanations of the Office's recommendations for the ensuing year's expenditures. Administrative heads of all government departments were instructed to be available for discussion with the Citizens' Committee, even if it meant that they had to postpone vacations.

The subcommittees spent three weeks meeting with government officials, listening to explanations about the programs and services that formed the basis of the various budget requests. Specially prepared visual aids, plus the free give-and-take of informal question and answer sessions with administrative officials, especially helped the subcommittees over the hurdles where complex financing problems were involved. In some instances, special tours were arranged so that the Citizens' group might see certain operations and facilities in action. Thus Denver's citizens learned to evaluate government spending from the standpoint of adequacy; use of equipment; personnel methods; expenditure control; and necessity of the work program.

At the end of the period, the Committee, acting on the findings of its subcommittees, drew up its recommendations and a preliminary report to the mayor. In addition, many members of the Committee reported their findings to the civic group or organization that they represented and asked for guidance in their final recommendations.

In October, when the mayor met with his department officials and the City Council to discuss the budget, Committee members were also invited to attend and air their views.

At these meetings, the agencies presented their budget requests in detail; the Budget Office presented its recommendations, based on a minimum tax levy the citizens' subcommittees in turn explained the kind and level of services they expected from the city. Far from being "rubber stamp sessions" these meetings were filled with spirited discussions. They lasted for over three weeks with some sessions going over five hours at one time. The result was city-wide public interest in Denver's budget-making.

When Mayor Nicholson made his final budget presentation to the City Council in November, it was not only based on the composite thinking of city official, but it was also representative of the desires of the community as expressed through the Citizens' Budget Committee. Many of the Committee's recommendations were finally incorporated into the final budget submitted. Where the Committee asked for a total budget of $28,001,437, the Budget Office recommended $28,055,097 which represented the final request.

But statistics do not tell the whole story. The total experience adds up to an enlightening venture in budget-making between government and taxpayers. The result will undoubtedly set a pattern for future budget making in Denver.

Expenditures Must Rise

Undoubtedly, many of Denver's citizens came to these budget meetings with the idea of keeping the city's spending at a minimum, but they learned to reason that expenditures must continue to grow if the city was to maintain its public services. They therefore recommended a corresponding level of service which they deemed essential, regardless of the tax implications.

The success of the Citizens' Budget Committee in Denver is best summed up in a statement contained in the committee's report to the Mayor:

We all recognized that the sizable population growth of our city has made increasingly difficult the providing of funds for sharply increased outlays for public services. This fact, coupled with inflated prices, has greatly increased expenditures of the City and County of Denver. In view of such heavy dependence on an overworked property base, which is shared with both schools and state, it becomes harder to get revenues to match expenditures.

Our committee originally hoped for a goal involving no increase in the mill levy for 1956 expenditures. Upon examination of subcommittee reports as they came in however, it soon was discovered that such a goal was unattainable.

Simplified Building Inspection

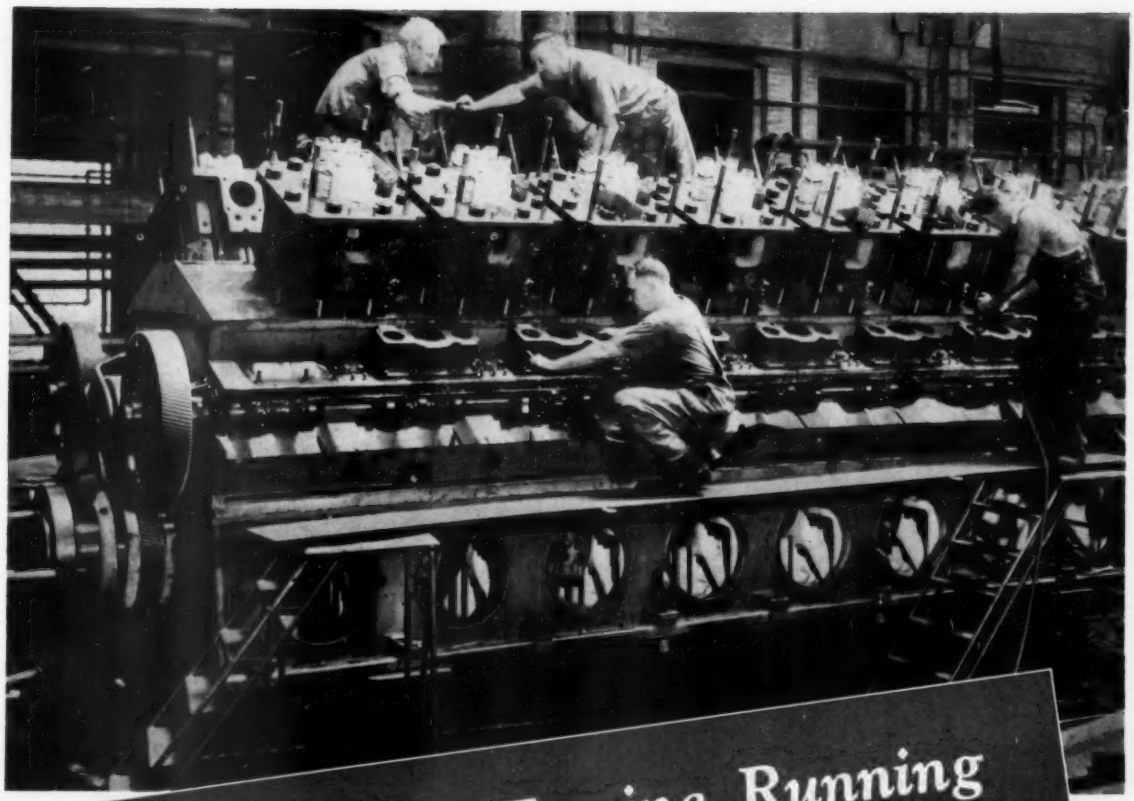
COLUMBIA, S. C., became the first city in the Southeast to initiate a combination inspection system of one-family and duplex dwellings.

Combination inspectors now check all phases of construction and installation work in one- and two-family residences—including foundations, electrical work, plumbing, gas piping, structural strength, heating, and zoning law compliance. Formerly, five or six different inspectors were used to check each construction stage: when the foundation is laid; when framework is up and initial wiring, heating, plumbing and gas installations are made; and, finally, when the building is completed, before occupancy. Now, the same man makes only three visits to each home, unless failure to meet specifications necessitates a reinspection after correction.

All inspectors assigned to perform combination residential inspections have undergone a thorough six-months' training program before the system was started. Training included actual field experience with specialist inspectors on the job in residential buildings, and classroom lectures on city ordinance requirements and technical aspects of zoning, structural safety, gas, heating, electricity, and plumbing.

Specialist inspectors are still used to check multifamily residences, apartments, commercial buildings, and industrial plants—and are also available for consultation when the combination inspectors meet an unusual or highly-technical problem.

"The combination inspection system not only enables city inspectors to give more prompt and efficient service to builders by saving man-hours, but also cuts division operating costs," City Building Official Alton T. Riddick points out. The bulk of Columbia construction work, 80-85%, is in single-family and duplex residences, he notes.



Keep that Engine Running

Proper maintenance and operation is essential to good performance and long life of the diesel engine

TODAY, cities use diesel engines whenever they need an independent source of power that must combine reliability with economical operation. Municipal installations include units of all sizes and types; they generate electricity, drive pumps, operate construction equipment, or provide standby power. Although tough, the diesel engine, like all other machinery, requires regular maintenance to insure dependability, long life, and efficient operation.

To assist the operators of diesel engines, the Worthington Corporation of Harrison, N. J., has condensed all the vital facts about these engines and has submitted tips for their maintenance and operation.

The diesel engine is a valuable piece of machinery, and while most are designed for extremely rugged service, careful attention should be given to proper lubrication procedures. If excessive bearing wear or failure occurs, the operator should immediately check for corrosive or contaminated oil, incorrect oil viscosity, water in the oil, or insufficient oil. High oil temperatures may be caused by clogged oil lines or oil cooler, insufficient oil, incorrect oil viscosity, or dirt or sludge in the crankcase.

Crankcase deposits generally are indicated by high or low oil temperatures or by a water leak in the crankcase. Improper lubrication may also cause sticky rings, combustion chamber deposits, and lack of power and efficiency.

Engine Parts

Each working part must be considered vital to the over-all engine and should receive careful attention. Following is a handy check list for maintaining precision engine parts:

1. Never store pistons or cylinders to allow distortion.
2. Periodically check piston and liners for wear.
3. Check for correct piston clearance.
4. Periodically check piston-cooling system.
5. Check for worn or weak rings.
6. Allow sufficient ring side and end clearance.
7. Be sure oil ring control is effective.
8. Keep crankcase breather-vent clean.
9. Maintain proper bearing clearance.
10. Never allow bearings to wear to the point of crankshaft misalignment or bearing knocks.
11. Check clearance of intake and exhaust valves periodically.
12. Guard against overheating of bearings.

A little extra time and planning will not only reduce fuel costs, but

will insure full combustion efficiency and power. If the daily log indicates improper combustion or lack of power, the trouble may be caused by incorrect injection timing or pressure, a plugged fuel oil system, or fuel leaks. Sticking fuel nozzles or sticking, worn, or leaking outlet and exhaust valves may also be the culprit. The operator should also check for an improper or low-grade fuel or water in the fuel.

Air System

The diesel engine's air system is as vital to efficient performance as any other portion of the engine, and its maintenance should be handled accordingly. Insufficient air may result in poor combustion, wasted fuel, and an over-all lack of power and efficiency. Improper filtration is another danger area in the air system and often results in excessive wear of the ring and cylinders. Deposits in the combustion chamber may also be caused by poor filtration.

Settings and Balance

Proper timing, settings, and balance rates top priority for the efficient operation of the diesel engine. Improper combustion or lack of power calls for a check for low compression pressure or improper timing. The operator should also check the points listed under "Gas and Fuel Oil Systems." If improper combustion continues, check for any unbalance of the load between cylinders.

Operation

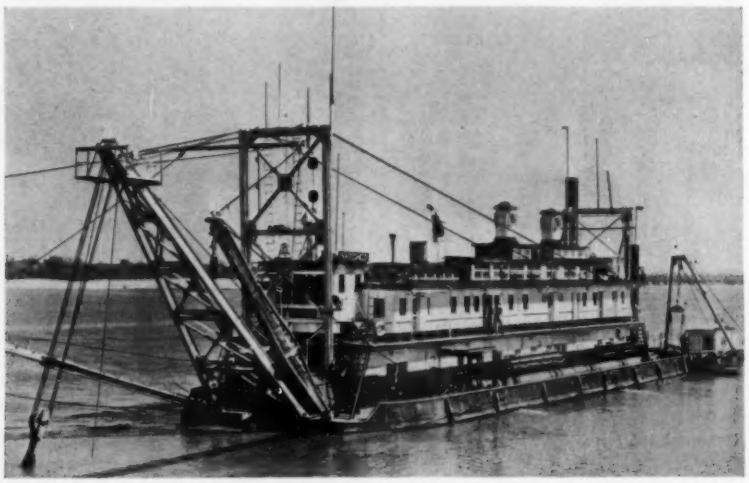
A properly designed stationary diesel engine can be loaded to 110% of its full load rating for as long as two hours in any 24-hour period. Regardless of increased emergency demands or other power requirements, the valuable diesel engine should never be operated continuously above its rated horsepower. Such operation may cause sticking rings and deposits in the combustion chamber. More serious trouble such as excessive wear, damage, and greatly increased maintenance costs may also take place.

Diesel engines perform their best when operated between 75% to 100% load. Extremely low operation can also be harmful, resulting in improper combustion that in turn causes deposits in the combustion chamber and crankcase.

By adopting the aforementioned tips, the diesel engine operator will increase the life of the engine, reduce operating and maintenance costs, prevent serious breakdowns, and insure a continuation of the dependability that was originally built into the engine.

Dredges Give Cities New Land Sites

New industrial sites from tidal marsh areas at relatively low cost



Big dredges like this one are building new land out of swamps in the southern coastal areas. This one is operated by Williams-McWilliams Industries of New Orleans, La.

HYDRAULIC dredges currently are in the process of reclaiming lands adjacent to five southern population centers. The lands chiefly are low, tidal marshes formed by silt-bearing rivers. For land in urban areas, the costs are relatively low, varying from $200 to $6,000 per acre, with an estimated average of approximately $1,200.

Urban centers where work currently is in progress include those listed in the following two columns:

Memphis, Tenn., reclaiming President's Island for industry and port facilities.

Baton Rouge, La., reclaiming swamplands for refineries and chemical plants.

New Orleans, La., reclaiming marshlands for shipyards, refineries, gypsum plants, cement mills, steel yards, port facilities, airport, residential, and recreational areas.

Houston, Texas, reclaiming land for refineries shipyards, steel yards, and port facilities.

Galveston, Texas, for shipyards, port facilities, and small industries.

Corpus Christi, Texas, for refineries, aluminum and cement plants.

Lake Charles, La., for refineries, chemical and cement plants.

Pascagoula, Miss., for port facilities, paper mills, and cement plants.

Mobile, Ala., for paper mills, airport, shipyards, small industry, residential and recreational uses.

Gulfport to Bay St. Louis, Miss., 27 miles of sand beach for tourist attraction.

State, municipal and private funds are financing these projects.

The casual observer has difficulty in recognizing these decorative and functional structures as parts of a sewage treatment plant.

Cigarettes for Sewers, Murals for Digesters

Coral Gables, Fla., finds an unusual way to finance storm sewers, and uses refreshingly original decorations for its sewage-treatment plant

Those interested in the past can trace the history of the area by studying the murals used to decorate the digester tanks and control building.

By IRA F. WILLARD, *City Manager*
Coral Gables, Fla.

CIGARETTE tax money is helping to pay for new storm sewers in Coral Gables, Fla. A State Supreme Court decision allowing the use of cigarette tax money to back up $500,000 worth of storm-sewer bonds made this possible. The system, composed of slab-covered trenches dug in the underlying limestone, provides protection from floods and heavy tropical rains. Storm sewers now serve the central business district, the industrial area, and many of the apartment sections of the city. Operating by gravity, the system carries the storm water into a Coral Gables canal without the aid of pumping stations. From here the water flows to Biscayne Bay.

Still more important, from the sanitation aspect, is the city's $3,250,000 sanitary sewerage program. On April 26 of this year, Coral Gables reached a milestone by formally dedicating the new sanitary sewerage system and sewage treatment plant, thus culminating the effort of many years to erase the stigma of being a "septic tank town." The Florida State Board of Health, headed by Director David B. Lee, has strongly stressed the hazards of septic-tank use in heavily populated residential and commercial areas. Knowing this, Coral Gables, part of the Miami metropolitan area, with a population exceeding 700,000, has for many years been planning its sanitary sewer system.

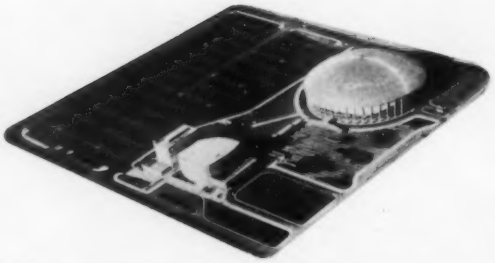
In 1954, revenue certificates in the amount of $3,250,000 were sold to finance the sewage treatment plant and portions of the sanitary sewer system. The new system now serves the central business district and many apartment and single-family residential areas. About two-thirds of the city must still be sewered and plans for several sections have been completed.

The new sewage-treatment facility, a 2.5 mgd (million gallons daily) activated-sludge plant, has been in operation since February 11, 1956. Plans allow for expansion of the plant to treat 7.5 mgd, and when the sewer system is completed, it will serve an estimated future population of 75,000 residents.

A most unusual feature of the Coral Gables treatment plant is the exterior historical murals executed in vinyl paint by John St. John, muralist. The murals trace the history of the area from earliest times to modern day. Authentic relics and symbols have been used profusely to illustrate the themes.

The plant, designed by Smith and Gillespie, Consulting Engineers of Jacksonville, Fla., is attractive and pleasant in appearance and fits in well with the neighboring structures. In cooperation with the University of Miami School of Engineering, classroom facilities have been installed in the main building of the treatment plant so that students of sanitary engineering may conveniently hold laboratory classes at the sewage treatment plant.

Markowitz Bros., Inc., of Miami, were the general contractors for the treatment plant. Structural work was subcontracted by Burk Construction Company of Miami, and the Crom Corp. of Gainsville, furnished the prestressed concrete digester tanks. M. B. Garris, Consulting Engineer of Miami, directed the over-all sewer projects.



Pace-Setting Civic Center in Charlotte

Auditorium-Coliseum proves best combination to serve 150,000- *person metropolitan area*

CHARLOTTE, N. C. (population 150,000), now holds the record for the largest dome in the world. The aluminum dome of its new coliseum is more than 332 feet in diameter, measuring 194 feet more than the dome of St. Peter's in Rome and much larger than the dome of famed St. Paul's in London, England.

This immense structure is part of a $5-million auditorium-coliseum civic center erected by the southern municipality. The project is located on a 23-acre plot on a six-lane crosstown boulevard about three and one-half miles from the city's center.

Since its completion last September, the Center has opened its facilities for every major event and gathering that has come to this "metropolis of the two Carolinas." As a municipal recreational and cultural center it not only serves Charlotte but also proves a boon for the surrounding region.

The coliseum, enclosing a two-acre area with not a single column to mar

The auditorium (left), seating 2,500, has an overhang at the entrance to shelter automobiles. Circular building in the background is the coliseum, which seats a maximum of 13,000 people.

the view of spectators, provides one of the best sports arenas in the nation. Its flexible interior seats 10,000 for big spectacles like hockey games and circuses that use up the entire main floor space. For events like boxing, which uses only a fraction of the floor space, it seats 13,000. Since last January, the Baltimore Clippers ice-hockey team has moved to Charlotte to take advantage of its coliseum in big-league ice-hockey games. The opening game played to a capacity crowd of 10,000 and the attendance held up for the remainder of the season, thereby dispelling the initial fears that the town would not be big enough to support the team.

The adjacent auditorium seats 2,500. It is so designed to afford an excellent view of the stage from any point without interior columns to block the view. Modernistic in design, it has an overhang at the entrance to shelter automobiles. The stage, 100 feet wide and 50 feet deep has a 60-foot proscenium. The building is fully air-conditioned and has "perfect" accoustics. Public meetings, exhibitions, and concerts are held here. Local civic opera and symphony organizations also make good use of it. Major events are held in the coliseum.

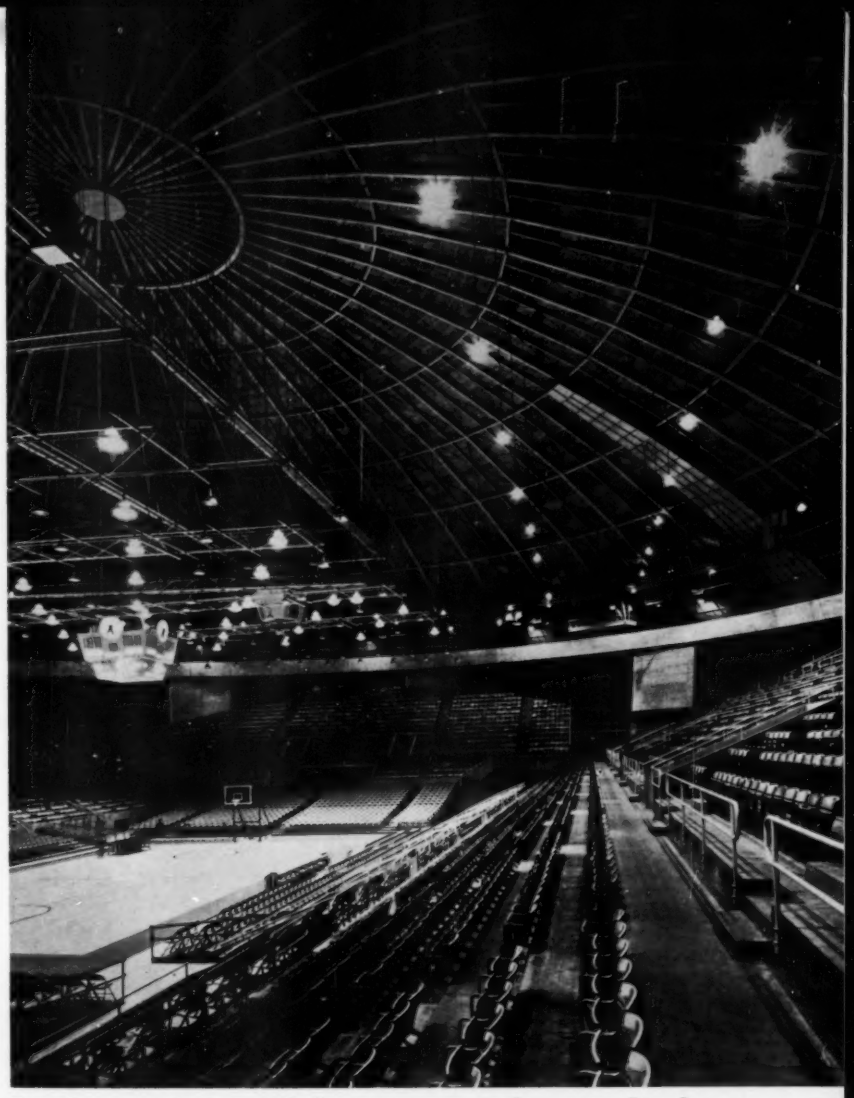
The two buildings and landscaped grounds occupy eight acres of the site, and the remainder provides parking areas, including a 2,000-car parking lot which can be emptied in 15 minutes. The entire project cost $4,698,000. Architect was A. G. Odell, Jr., of Charlotte.

Charlotte first got the idea for a civic center several years ago when it was discovered the city needed a public hall adequate for large gatherings. Various plans were considered and the city finally settled for a civic center that would provide a coliseum and auditorium, with enough space for future enlargement.

An auditorium-coliseum authority was created by legislation to develop detailed plans for the civic center. The taxpayers of Charlotte went all-out and authorized a $4,000,000 public loan to finance the project.

Commissioned by the Authority, architect Odell and his firm developed this dramatic design. But even with the world's biggest dome, Charlotte does not rest content. The Authority is already planning an exhibition building to stand between the auditorium and the coliseum.

EDITOR'S NOTE: Another city with a coliseum-auditorium municipal center is Lubbock, Texas. (See THE AMERICAN CITY, January 1955, p. 124).



The coliseum contains one of the best sports arenas in the country. It encloses a two-acre area with no columns to block the spectators' view.

Anti-Noise Ordinances Proposed in Two States

THE New York City Planning Commission is seeking action to fence in certain types of businesses in the interests of noise abatement, a neater city, and property-value protection.

The Commission has proposed a new section to be added to the New York Zoning Resolution. The amendment will require:

1. Business establishments, such as junk yards, automobile wrecking yards, and places storing second-hand lumber and other salvaged building materials, to be housed within a building or an enclosed yard so as to keep their activities from public view;

2. Existing establishments not housed within a building to be enclosed by a solid fence or wall that is of uniform material and color and at least 8 feet high;

3. Any future establishment housing the above uses to be located at least 50 feet outside of a residence district boundary line.

To cope with many of the same problems, the Southern California Planning Congress recently circulated a model ordinance aimed at "the elimination of . . . noises and nuisances at their source." Among other things, the "Suggested Model Ordinance Prohibiting Unnecessary Noises and Nuisances" would prohibit automobile repairs and testing of airplane motors unless they are "reasonably confined" within a building. It would also prohibit playing musical instruments or keeping animals which by "any sound or noise" disturb the neighborhood. The ordinance provides for penalties up to $500 fine and/or six months imprisonment for violators.

The Canandaigua pumping station is located about 3 miles south of the city. The building adjacent to the old station houses the new F-M diesel driven pumps.

Ample pumping capacity, two sources of power, and large storage capacity guarantee uninterrupted service to this resort commnnity

We're Ready for That Emergency

By RUDOLPH K. GENTHNER, *Superintendent of Public Works, Canandaigua, N. Y.*

WITH the installation of a new diesel engine driven pump, Canandaigua, N. Y., is now prepared to handle almost any kind of emergency that may come along. Both diesel and electric power is available to drive pumps, with added security provided by a 4,000,000-gallon storage reservoir that can supply the community with water by gravity for two days under normal demands.

Modernized System

The West Lake Road pumping station, constructed in 1895 to replace an old plant, had an original discharge capacity of 2 mgd (million gallons daily). At that time, a 16-inch cast-iron intake line was constructed into Canandaigua Lake a distance of about 500 feet to a depth of approximately 40 feet. This same intake is still in use. The original pumps were 12 by 12 triplex steam pumps rated at 1,400 gpm (gallons per minute) and driven by a 125-hp Corliss steam engine.

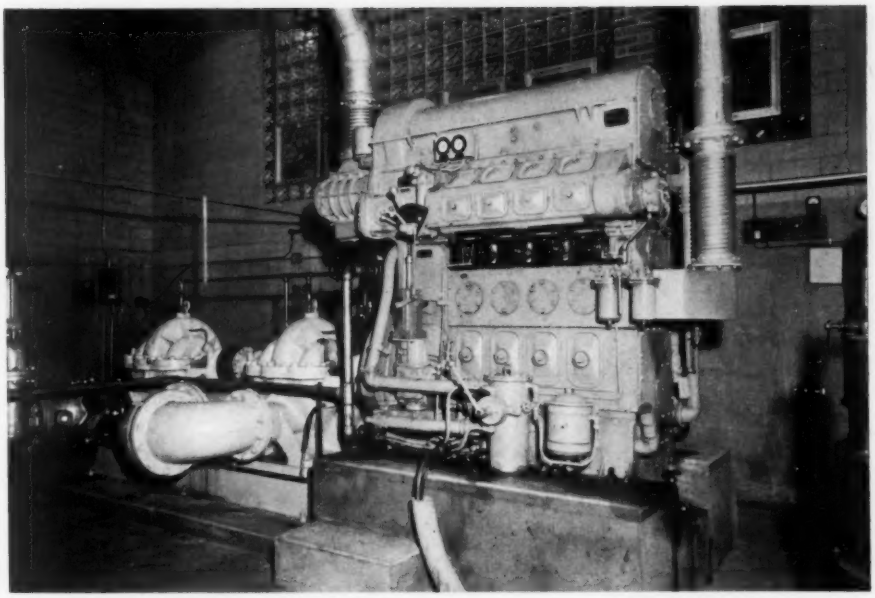
In 1913, the community became incorporated and took over the water works. Operation of the plant was first contracted by the Rochester Railway and Light Company; but in 1926 the city assumed this responsibility. The first electric equipment was installed in 1915 and a second modernization program followed in 1926 at which time the city installed two Gould centrifugal pumps. Each pump, rated at 2,375 gpm, was driven by a 250-hp General Electric motor. These units operated daily until 1954 when a new renovation program, which reduced pumping hours, was put into effect.

Originally installed for standby use, the new unit is now operated on a daily basis. It includes a pair of 10-inch centrifugal pumps, operated in series and driven by a 300-hp opposed-piston diesel engine. Designed to pump 2,500 gpm against a net head of 304 feet, this Fairbanks-Morse unit has averaged 2,800 gpm under actual working conditions.

A free-wheeling throwout coupling connects the engine with the pumps, allowing the engine to be disengaged from the pumps during starting operations. Engine cooling is accomplished by passing raw water through a heat exchanger to cool the jacket water. Rain water plus a rust inhibitor is used as engine make-up water.

1926 Pump Replaced

Last September, a new 8-inch Fairbanks-Morse centrifugal pump was installed as a replacement for one of the old units. Driven off the same electric motor, the new pump handles about 18% more water than the old unit, amounting to approximately 500,000 gallons of additional water per day. Rated capacity of



Originally installed for standby service, this unit now operates on a daily basis.

the new 8-inch pump is 2,400 gpm. Pumping equipment now includes the two new pumps and the remaining 1926 unit.

Canandaigua is blessed with a very clear and potable water supply, probably attributable to the location of the intake inlet near a big spring in the lake bottom. The water is consistently low in turbidity, so does not require filtration.

Water is pumped from the lake directly into the distribution system through two transmission mains, one 12 inches and the other 16 inches in diameter. Water in excess of the immediate demand is discharged into the 4,000,000-gallon reservoir. The reservoir is located 275 feet above and about three-quarters of a mile from the pumping station. This reservoir floats on the line and, when full, has sufficient capacity to meet all community needs during a normal two-day period.

Bristol telemetering equipment maintains a constant record of the water elevation in the reservoir. Water pumped by the new diesel unit is measured and recorded by a Simplex venturi meter and recording flow meter. A Builders-Providence venturi meter measures and records the amount of water pumped by the electric units.

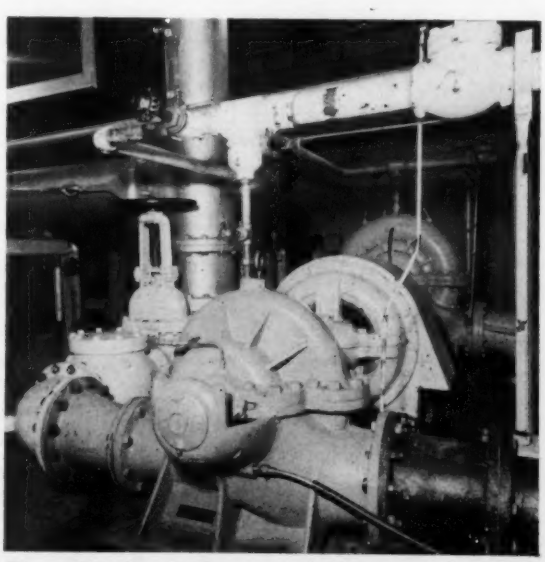
Two Wallace & Tiernan chlorinators are connected to feed chlorine to any one of the three pumps. We are now in the process of installing one Wallace & Tiernan loss-of-weight, volumetric fluoridation machine. All of these instruments are equipped with recording gauges that indicate the exact amount of chemicals used daily.

Resort Community

The city is located at the north end of Canandaigua Lake, one of the beautiful finger lakes found in west central New York. The lake is approximately 15 miles long and 2 miles wide and is surrounded by hills rising as high as 2,000 feet above sea-level. Mean low lake elevation is 685 feet.

Because of its beautiful setting, Canandaigua has developed into an active resort community. A large veterans hospital is also located in the area and is served by the water department. The winter, or permanent population, of about 9,000 swells to approximately 15,000 persons during the summer months. An additional 3,000 persons, including patients and staff, are located at the hospital. Our normal consumption averages about 1.75 mgd, but in the summer we pump as high as 3 mgd.

The new pumping equipment plus the large storage reservoir should be sufficient to meet almost any emergency. Our permanent residents and vacationing guests can rest assured that water will be available when they want it—and in sufficient quantity.



The combination of new pump and old motor produces 18% more water with no increase in power consumption. Note difference in size between new (front) and twin of replaced unit (rear).

The new utility building, with city hall behind it.

A *Texas City*

Puts Punch into Utility Billing and Building

By R. M. HACKETT
Commercial Office Manager
Public Utilities Office
Corpus Christi, Texas

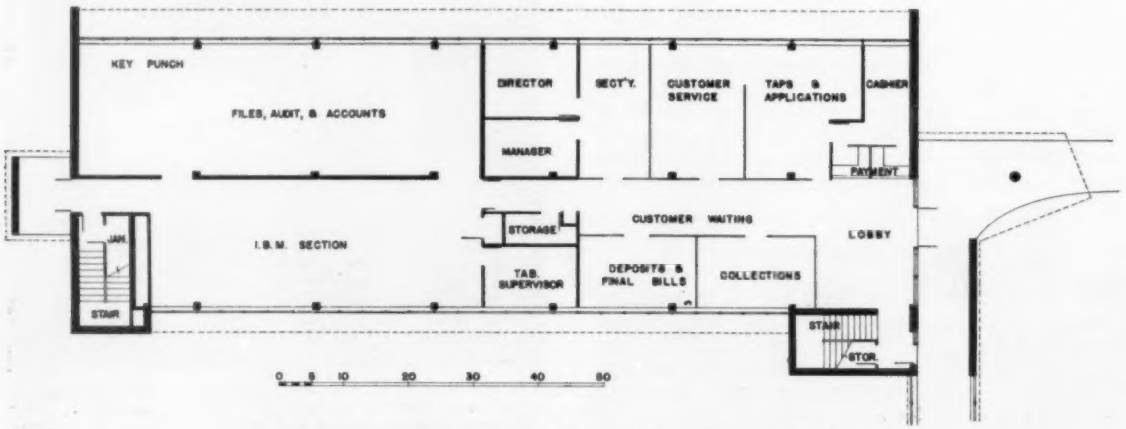
THE City of Corpus Christi (population 160,000) furnishes utility service to 43,000 customers. A direct monthly charge is made for water, gas, sewer, and garbage services. Two private utility companies have gas franchises in certain areas, and several garbage haulers are licensed. The result is variable billing with an average of 3.2 services per customer.

We have a new building constructed to house the customer contact and billing operations, as well as the director of public utilities. Headquarters for the maintenance, operation, and construction functions of these utilities are located at various points in the city, and were not affected by the moving of the Commercial Office in April 1955.

Visitors' comments tell us that the arrangement of work space within this building is particularly good. Our visitors come to study the building and utility procedures. Sometimes they are interested only in the International Business Machines installation. In fact, the installation of the I.B.M. machines in 1953 made possible the postponement of the expansion. The need for better designed quarters had been recognized for several years. Since 1944 the number of utility customers doubled, and billing activity tripled. The $22,000,000 bond program approved by the electorate late in 1953 stipulated $200,000 to construct a separate building for the utility office.

Comfort and Efficiency Sought

Desks were measured to show the room necessary for a chair and clerk and templates were cut to scale.



First-floor layout of Corpus Christi's new utility customers' building.

When a clerk was responsible for customer contact, the space for the customer was also included in the template size. Templates were also made for the I.B.M. equipment and card files. With these templates it was soon discovered that two major divisions of the building were needed: customer contact, and I.B.M. equipment and records.

These two sections should be separated from each other, but be on the same floor. Because of the noise level of the tabulating equipment, this room was separated from the record room and treated accousticalally. This gave us three separate work areas with all communications between the contact area and the record room by telephone.

The record room is spacious and efficiently laid out. It is separate from the section containing tabulating equipment, thus assuring a work area with a low noise level.

When the templates were laid out according to work flow and the other considerations previously mentioned, an outline was drawn around them and thus the first sketch of the office was evolved.

Organizationally, the use of the building is divided into five components: customer service, credit and collections, tabulating equipment, field service, and administrative. ***Customer service,*** occupying 840 square feet on the right of the hall, is responsible for utility taps, applications for service, customer information and the checking of bills.

Credit and Collections utilizes 580 square feet to the left of the entrance for the acceptance of customer's payments either in person, by mail, or from pay stations. The cashier's booths are conveniently placed just inside the main entrance. This section also presses delinquent collections and accounts for customer deposits as well as processing final bills.

Administrative, supervisory and secretarial personnel use 700 square feet. Most of this space is assigned to the Director of Public Utilities, who directs the full operation of the Water, Gas and Sewer Departments as well as the airports and street lighting from this building.

The ***tabulating equipment section*** in the new building uses 970 square feet for tabulating equipment, and 1,240 square feet for records and keypunch.

The ***field service section*** maintains an office with 230 square feet of space on the second floor of the building.

Rating Efficiency

In an attempt to evaluate efficiency of service provided by this office, questionnaires were recently sent to 57 cities of comparable size throughout the country. The results of this survey were inconclusive because of the diversified methods of billing and the lack of comparative data.

Customers apply for all, or some, services, and request disconnects at the rate of one every four minutes. These customers are handled by three application clerks of the customer service section. This amount of activity necessitates an efficient collection section. This section sends 4,000 final notices per month on bills 30 days delinquent. Two collector servicemen discontinue up to 1,000 customers per month to effect payment. Once a service is discontinued, it must then be renewed when payment is made. This means that the collectors, covering the same area as the servicemen, must make a stop every 12 minutes.

In less than one year this type of activity reduced 30-day delinquent bills from 45% to 13%. This level has been maintained for a year and a half.

To compute 140,000 unit services and bill 43,000 customers, the tabulating section operates 18 I.B.M. machines:

- 3 accounting machines
- 1 electronic calculator
- 1 mark sense reproducer
- 1 summary punch
- 2 collators
- 3 sorters
- 4 keypunches
- 2 verifiers
- 1 interpreter.

Billing Routine

Utilities are billed monthly on a cycle basis using 20 cycles. The routine of this billing takes four days from meter reading to mailing. Normal billing has been reduced to a mechanical routine. Meter reading cards are electrographically marked in the field by the meter readers. These marks are sensed and reproduced into billing cards along with pertinent information punched into the meter reading card. Consumption and amounts are calculated and punched into the billing card in a subsequent operation. The punched stub bills and a billing register are printed from the billing cards which then become accounts receivable cards. Using the punched stub, which is returned by the customer with his payment, the accounts receivable file is posted by mechanically removing the billing cards reflecting the customer's account. These cards are punched with the date paid and filed in the paid history file.

Only 60% of the resources of the tabulating section are used for utility billing. In 1955 this section calculated and printed 48,000 City and Water District Ad Valorem Tax Statements with associated records, and 44,000 statements for the Corpus Christi Independent School District. Several statements showing delinquent taxes are printed throughout the year for both offices. The 1,400-employee city payroll is also prepared semimonthly by this section. In previous years printing and balancing of W-2's was accomplished manually and took nearly 200 man-

(Continued on page 178)

Courts Uphold "Capped Sewer" Ordinance

Township requires subdivider to supply septic tanks, and also sewers, capped and ready to connect to future trunk lines

By RALPH LINDENMUTH
Township Solicitor
Marple Township, Pa.

Text of Marple Subdivision Ordinance Calling for Capped Sewers

"In all cases wherein trunk line sanitary sewer facilities are available, owner shall be required to install sanitary sewers and connect the same to such trunk line sewers, irrespective of the size of the lots included on said plot plan. If such facilities are not available, but will become available within a reasonable time, such sewers together with all necessary laterals extending from the main sewer to the street curb shall be installed and capped. In such event, owner may also install on-site disposal units, provided they are so located as to permit easy and the least expensive connection to the sewer, when it becomes usable."

FIVE years ago, the supervisors of Marple Township, Pa., faced a question that has perplexed increasing numbers of municipal officials. The question—all too familiar to planners and other officials in rapidly growing communities—was: how could they fit a wholesale expansion of services into a limited financial budget? The specific problem in Marple was how could they provide sewage disposal facilities in subdivisions built beyond the reach of existing trunk-sewer mains?

The answer that our Supervisors came up with broke with tradition—enough so, in fact, that an early application of it brought a wrathful legal suit down on the heads of the Marple officials. In 36 months, however, four courts have passed on the case, and the Township's policy has been vindicated by a favorable decision that leading planners in Pennsylvania have described as "of great importance to rapidly growing urban areas."

Building Boom

Marple Township's 10½ square miles of substantially vacant and rolling countryside had long been a lure for subdividers. But the building boom in this Philadelphia suburb didn't get under way until after World War II. Since that time, the local population has soared from its 1940 base of 2,000 persons, past 4,700 in 1950, to an estimated 14,000 today. Throughout this period Marple's officials struggled to keep the township's services expanding in pace with the population influx. Not the least of these problems was the expansion of adequate sanitary sewerage facilities.

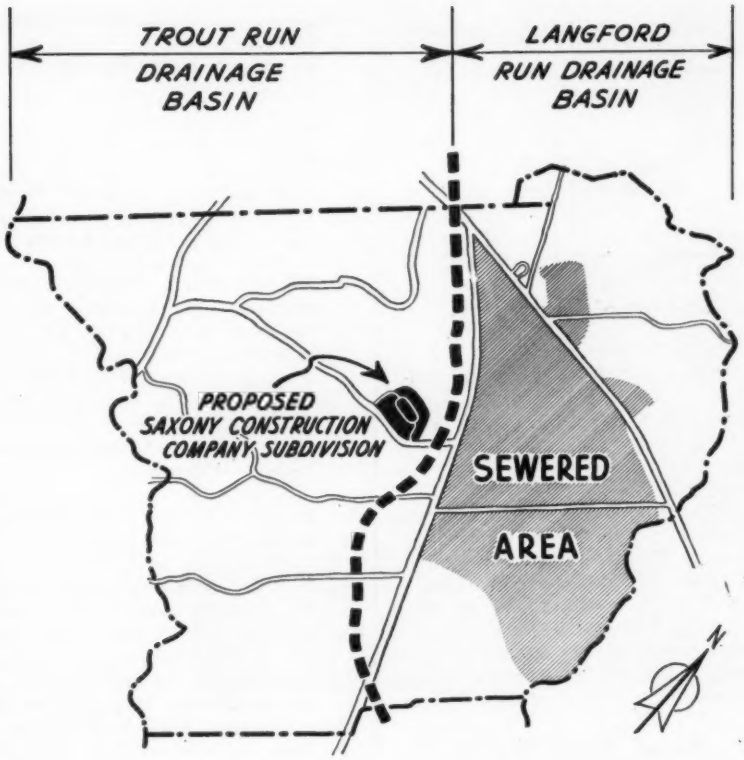
Perhaps the most difficult aspect of the sewer problem was the random manner in which new subdivisions were being located in Marple. Some were near the sewered areas of town and could be connected with our existing mains with little difficulty. Others, however, were far beyond the reach of the mains. Providing an effective method of disposal for these subdivisions was the real difficulty.

Sewers in Marple

The densely developed central section of Marple had been sewered in 1950. Since that time, additional mains and laterals were extended into adjoining sections capable of draining into the Marple-Haverford-Radnor Sewage Treatment Plant located on Darby Creek in Haverford Township.

Sewers were not constructed, however, in the western portion of Marple for two reasons. First, in 1950 the area was largely rural. What development existed there consisted primarily of large estates where septic tanks were adequate even though the soil was rocky. Secondly, the area lay in the Trout Run drainage area which is separated from the basin serving the center of the Township by a high ridge and which drains into a reservoir. (See map.)

When intensive subdivision actively began to spread into this western section just after 1950, Marple's supervisors could no longer postpone deciding how to provide for the disposal of sewage in that area. Although virtually the entire area required lot sizes that were technically capable of supporting individual septic tanks and cesspools, the Marple officials shied from permanently committing this area to such individual sewage disposal facilities.



Sewerage facilities in Marple Township in relation to the proposed subdivision.

Past experience in older parts of the township had shown that although such systems worked well in their early years, they had to be rebuilt later. Besides, the Marple officials had cocked their ears to warnings from other communities where effective control over septic tank installation and operation was proving difficult. Consequently, it was decided that the construction of a sanitary sewer system could be the only permanent solution to the disposal problem in the western section.

At about that time, the Pennsylvania Legislature passed a subdivision control act whose broad mandates made it clear that Marple could require subdividers to install (at their own expense) sewage disposal facilities necessary to serve the houses built in their developments.

With the passage of the act, Marple promptly adopted a subdivision regulation ordinance which required written agreements between the subdivider and the Township covering the location of streets, water, lighting and other utilities, including cesspools, and sewers. But, obvious as it was that the act gave local officials the authority to require the installation of sewers in new subdivisions, Marple's western section presented a special problem since any sewers so installed would have nowhere to drain to until the completion of a proposed trunk line to the Central Delaware County sewage treatment plant several miles south of Marple.

Factors Involved

The timing and coordination of the sewer construction was thus the main bugaboo. If money had been no object, orders for the trunk line installation could have been issued the next day. But Marple had a debt limit, as does every other municipality, and so, instead of scheduling the construction of the sewer trunk lines to convenience the subdividers, it was obvious that this work would have to geared to Marple's own financial capabilities and its own future expenditure programming.

Unorthodox Policy Adopted

With no tested means of halting subdivision construction in the western section until the trunk line could be constructed, the Marple officials decided to adopt this tradition-breaking policy: to require the local subdividers to (1) build sewers in their streets, (2) cap them at the points where they will meet the proposed trunk lines, and (3) if such lines are not available, provide each house with an individual septic tank to be used until the trunk line system could be installed.

Thus was born the provision of Marple's subdivision regulations that has since become known as "the capped sewer ordinance." (See text of ordinance on page 132.)

Brainstormed by Supervisor Fred Dunkerley and supported by fellow Supervisors Nelson Stuhlmuller and Thomas Younger (now president of the Board of Supervisors) the capped sewer requirement was first used in subdivision agreements in 1952. Two years later it was embodied in the Revised Subdivision Ordinance of March 1954.

Although the dual expense of providing two sewage disposal systems could be subjected to criticism, the Supervisors noted that this disadvantage was largely offset by the fact that sewers installed before roads are laid are substantially less expensive than those constructed when the roads must be broken into and patched afterwards. The resulting patched roads, they knew, would involve increased maintenance costs as well.

Litigation Results

Early in 1953, the town's capped sewer policy got its baptism of fire when the Saxony Construction Company protested an application of the requirement to a 48-house subdivision that it proposed to build in the western section of Marple. Having just authorized a study of an extension of the Central Delaware County Sewer Authority trunk line into the western section, the Supervisors felt that their intention to provide trunk lines in a reasonable time was being

sufficiently demonstrated. However, the Saxony Construction Company appealed the requirement of the dual facilities, contending that it was unreasonable and unlawful and that the decision of the Supervisors to compel capped sewers was arbitrary, capricious, and unconstitutional. In effect, the developer claimed that the requirement resulted in the deprivation of property without due process.

Decision of Lower Court

When the case was heard before the Court of Quarter Sessions of Delaware County, extensive testimony was taken to show the condition of the soil within the affected area, its percolation qualities, the need for municipal sewers in the over-all area of which this was a part, the length of sewers that had to be constructed to serve the area, and other related data. In its decisions, the Lower Court concluded that the requirement for capped sewers was a reasonable one and constituted a reasonable exercise of the discretion vested in the Board of Supervisors.

Second Appeal Denied

The Saxony Company appealed this decision to the Superior Court of the Commonwealth of Pennsylvania, and the case was argued in both Pittsburgh and Philadelphia. This Court held in effect that the regulation was a reasonable one and that the developer had no right to appeal from the decisions of the Court of Quarter Sessions. Two attempts to appeal this second decision to the Pennsylvania Supreme Court resulted in dismissals without opinions. Finally, the Saxony Construction Company took an appeal to the United States Supreme Court, alleging that the case involved constitutional questions that should be considered by the nation's top judicial body. The Supreme Court also dismissed the case without an opinion.

Thus finis was written to a case of importance in any area where development is occurring at a pace all out of proportion to the municipality's ability to cope with it financially.

Planners' Opinions on "Capped Sewer" Case

Opinion of M. Todd Cooke, Jr., Executive Director of Delaware County Planning Commission, Media, Pa.—

The Marple Township decision will be of interest to many suburban localities where building activity is outstripping the extension of sanitary sewer trunk lines. In Delaware County, for example, the number of subdivision lots dependent on on-site sewage-disposal facilities has increased steadily during the last five years.

Marple's pioneering action, now upheld by the courts, makes available a useful technique which will doubtless be adopted, with appropriate local modifications, by many other suburban jurisdictions. However, because this technique can both be properly used and badly abused, a considerable responsibility devolves on the municipality. If capped sewer regulations are adopted without proper and reasonable relationship to the municipality's financial ability and intent to provide the necessary trunks into which the sewers can be connected, there will unquestionably be justifiable complaints from home builders and others, and in all likelihood, unfavorable future court decisions.

Opinion of Francis A. Pitkin, Director of Community Development, Pennsylvania Department of Commerce—

The decisions in the case of the appeal of Saxony Construction Co. from Marple Township's ordinance are sound and of great importance to our rapidly expanding urban areas. If municipal planning is to be worthwhile, it must consider each current development in its relation to the long-range objectives of the community; and further, it must have the power and authority to establish and enforce well-studied regulations that will ultimately bring about the desired results.

Inasmuch as the Supreme Court of Pennsylvania and the Supreme Court of the United States dismissed the case without an opinion, we are unable to read too much into their actions. In particular, not much significance can be attached to the decision of the Supreme Court of the United States on a national scale. We can conclude, however, that both Supreme Courts were of the opinion that no constitutional rights of the appellant were injured or withheld.

Editor's Note: See editorial comment on page 20.

Tips on New Industries Bring Cash Awards in Iowa

IN THEIR COMPETITIVE BID for new industries, several Iowa municipalities are offering cash awards to tips that will lead to the establishment of a new industrial plant in their community. The usual "reward" offered by a city is $1,000—generally for an industry that will employ 100 or more persons. Among cities that have put up such rewards are Audubon, Burlington, Harlan, Iowa Falls, and New Hampton. Some of these cash awards are underwritten by local business groups. So far none of the cities has yet paid off for any tips.

Burlington has the top individual offer, $10,000 for a new plant employing 1,000 persons. The offer made last January will remain open for nearly two more years. It will be paid to the suggested or "tipped" firm that locates in Burlington by May 18, 1958, three years after the original offer was announced.

New Hampton's reward plan is offering $10,000 cash to a new industrial plant that will employ 1,000 persons or more and $5,000 cash to the industry employing 50 or more.

Audubon, Harlan, and Iowa Falls are offering both $1,000 and $500 rewards for new plants.

Other Iowa cities which are trying to attract new industries have resorted to more conventional methods. These range from setting up industrial development corporations, making industrial land or new factories available, to advertising in newspapers or trade publications.

Participants share experiences and learn new techniques at ACTION-sponsored renewal clinic. Officials from Iowa, Illinois, and Missouri attended along with renewal specialists from many national organizations concerned with urban development.

Midwest regional confab sets pattern for future meetings for local officials seeking advice on urban renewal

ACTION Clinic Offers "Renewal Checklist"

PRACTICAL suggestions for starting local urban renewal programs emerged recently from a two-day pilot Community Improvement Clinic in St. Louis.

The clinic, sponsored jointly by the American Council to Improve Our Neighborhoods (ACTION), and the American Municipal Association with the Municipal Leagues of Illinois, Iowa, and Missouri, was evolved as the best means of answering officials' questions relating to the purposes of urban renewal, how local programs are started, how housing codes are prepared and enforced, and other broad questions.

At the conference, mayors, city officials, and civic leaders from 55 communities in three midwestern states had an opportunity to meet with and tap the know-how of some of the nation's top specialists on renewal and community development. The American Institute of Planners, American Society of Planning Officials, Chamber of Commerce of the United States, National Association of Home Builders, the National Association of Housing and Redevelopment officials, National Association of Real Estate Boards, and the federal government's Urban Renewal Administration were among the organizations concerned with renewal and community development with representatives at the clinic.

Plan "Big"

Highlight of the meeting was the advice offered by James W. Rouse, Chairman of the President's Subcommittee on Conservation, Rehabilitation, and Redevelopment, who urged the attending officials to develop their local renewal programs on a large scale. A program of size, scope, and potential, he said, has a better chance of being adopted by the community than a small piece-meal effort.

Mr. Rouse, associated with Nathaniel Keith, a Washington planning consultant, pioneered a far-reaching renewal program for Washington, D. C., several years ago. When published, the plan was hailed by planners and housers as one of the nation's best conceived urban renewal plan.

Among Mr. Rouse's other recommendations to the city officials were:

1. ***Citizen participation. Organize a small, compact citizens committee composed of the "top men" in the community who are representative of local interests.*** This may include the top merchant in town, a labor leader, a real estate man, a social worker, and the publisher of the local newspaper. When they are sufficiently informed and given a program, these people will provide the nucleus for community action. This kind of citizens' group has worked successfully in the Pittsburgh smoke control program of the Allegheny Conference and in Chicago through the Metropolitan Housing and Planning Council.

2. ***Conduct a comprehensive survey of the community's problems not only of its zoning laws, housing codes, planning situation, etc., but also of its administrative machinery.*** Concrete recommendations for future action should come from this survey. The survey would cost between $2,500 to $50,000 and require two to six months in time depending upon the size of the city and its problems. Baltimore is currently spending $35,000 on a survey while a survey recommended for Hagerstown, Md. (population 30,000), is expected to

cost in the vicinity of $5,000.

3. ***Local citizens should be made to realize that a public improvement program is a self-sustaining program representing an investment rather than a burden.*** The funds which will be expended in the program will eventually be more than compensated by direct revenues in the form of new taxes and indirect revenues in terms of new markets for stores in the central business area.

Other indirect benefits will often include lower crime and juvenile delinquency rates. This has been demonstrated in the City of Washington which has undertaken a $200,000,000 improvement program. It was estimated that the program would be entirely self-sustaining through an intelligent use of the public works budget and increased tax revenues from improvements.

Housing Code

The growing use of municipal housing codes to enforce minimum standards of health and safety and sanitation in existing dwelling units was discussed. Representatives of cities that have pioneered in the use of such codes to obtain the rehabilitation of deteriorating housing offered the following tips:

1. Adequate financing from neighborhood or community sources for families who cannot obtain regular bank loans should be available in a code enforcement area. A "Flight Blight Fund" financed by banks and public spirited business men and groups in the community can be set up to help out these families.

2. To obtain compliance by hold-out landlords, some communities have set up special housing courts where the magistrate hears nothing but housing cases. It has been found that regular courts which are concerned with crime and major offenses are apt to be too lenient with housing code violators.

3. To encourage private rehabilitation above minimum requirements, a municipality must do its share in upgrading the neighborhood. It must improve schools, parks, streets, lighting, sewers, etc. The residents should be informed about forthcoming city improvements so they will know that increased property and living values will result from their combined efforts.

4. Plans for housing code enforcement must be tied-in with the city's general plans for redevelopment and public improvements, so that a neighborhood which may be cleared for a new expressway in several years will not be wastefully rehabilitated.

Clinic conferees agreed that the development of broad public support is probably more necessary in urban renewal programs than in most municipal activities. In this regard it was shown that the experiences of big and small cities alike—Chicago, Ill., and St. Louis, Mo., Waterloo, Iowa, and Springfield, Ill.—have taught the same lesson: when you give citizens of the community or the residents of a neighborhood the facts on a sound program, bring them in on the thinking and let them put it across to the rest of the community, your renewal program will be successful.

Andrew Heiskell, publisher of *Life* Magazine and chairman of the Board of Directors of ACTION, advised the conferees as follows:

1. Newspapers, radio and TV can help put a renewal story across to the people, but the job must be made easy for the editors and program directors in these fields who are busy people. Because they have to deal with important news fed to them from all over the world and locally, and because many community groups are vying for their attention, you must "sell" your story to them. To do this, figure out what will interest the readers and listeners, figure out how the editor can tell your story, and give him a "package."

2. Don't forget the other forms of communication. Service clubs, churches, labor unions, professional groups, PTA women's organizations, have meetings and publications and are communicating with other people. Exhibits at a central public place can help inform people and crystallize interest around a subject. Events, such as a bus tour for leading citizens of areas needing improvement, are effective techniques. Films about urban renewal subjects to be shown at group meetings are productive, too.

Where to Find Technical Help

Because the development of detailed renewal plans requires a high degree of technical competence the conferees focussed a large part of their discussion on means of obtaining technical assistance. Representatives of the federal Urban Renewal Administration noted that they offer a free field service to localities considering undertaking urban renewal programs. Specialists on housing codes, zoning and other phases of renewal will travel to communities on request and advise local officials what they can and cannot do with federal assistance. Such federal help will pay two-thirds of the cost of needed public improvements in a full scale local renewal effort.

Emphasis was laid on the importance of developing long-range plans in all communities. Means of getting help in preparing such plans, needed as a basis for receiving federal renewal funds, were also discussed. Among the sources for this aid are:

1. Staffs of state planning agencies, such as in Tennessee or Rhode Island, where state personnel join with municipal officials in developing local planning programs.

2. The federal government, which provides funds for local planning programs in cities and towns having populations under 25,000. This program is administered by the Urban Renewal Administration.

3. State universities, which often have planning advisory services available to localities. The University of Illinois, which has a well staffed Bureau of Community Development, is an example.

4. Utility companies which, in some instances, maintain trained staffs to offer planning assistance to smaller communities. One such is Cleveland Electric Illuminating Company in Ohio.

Expenditures for local planning can be reduced, the conference was told, when a number of communities in an area jointly contract for and finance the services of private consulting firms to serve all of them. A further means would be for suburban towns to join with their central city in financing a permanent professional planning staff to serve all participants. Sometimes the localities may join with their county government for the same purpose.

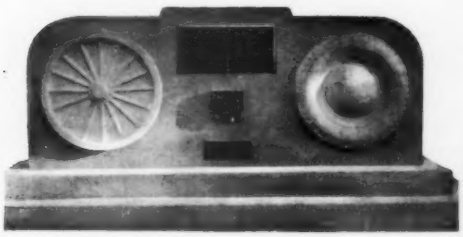
The conference drew favorable comments from many attending officials. Mayor Glenn L. Stech of Waterloo, Iowa, assured the ACTION executives who called the meeting that the information he had received "would not have been available in any other place in so short a time." Mayor Walter J. Guenther of Fort Madison, Iowa, in considering the benefit potentials involved for his community, indicated that the meeting was the most important conference he had attended.

ACTION officials were so pleased with the outcome of the clinic that they plan similar meetings in other regions of the country in future months.

(Above) The exposed concrete still looks strong and durable.

(Right) A Robert G. Evans "Target" saw slices away the damaged concrete.

(Below) This monument, erected by the Junior Chamber of Commerce, attests Bellefontaine's pride in this historic stretch of pavement.



Maintenance Needed After 65 Years

IN 1891, Bellefontaine, Ohio, made municipal history by paving its city square with a revolutionary, new product known as Portland Cement concrete. The paving was provided principally to prevent the spirited horses used in this Buckeye city from pawing up the street while at their hitching posts.

In the intervening 65 years, this "experimental and controversial" piece of street paving withstood not only the pawing of the horses, but also the rolling weight of cars, trucks, and buses. Finally, Old Man Deterioration caught up with parts of it.

However, Bellefontaine in the meantime had developed a sentimental fondness for this historic bit of street system. Its Junior Chamber of Commerce had erected a monument commemorating the fact that this street was the starting point for better roads throughout the nation. As a result, Mayor G. Louie Wren proposed that the city repair the street to reclaim as much of the original street paving as possible.

To do the work, the city street crews used a Target concrete saw that carefully scored the top of the concrete to a depth of 1½ inches. A pneumatic hammer then broke away the damaged portion so that it could be replaced with new concrete mixed to more modern specifications.

With the new repairs in place, the people of Bellefontaine confidently expect their historic pavement to be serving the public for at least another 65 years.

Statewide Buying for New England Municipalities

Too much municipal work has caused part-time officials to favor bulk purchasing in Maine, Massachusetts, and New Hampshire

Buying for Maine Towns

OF Maine's 492 communities, only Portland and Bangor have full-time city purchasing agents. There are in Maine 117 municipalities which have city or town managers. In these communities the manager does the purchasing. In the other than manager towns, the Selectmen serve only part-time and have regular occupations from which they derive their livelihood.

Centralized Purchasing Studied

These facts, together with suggestions and urging from the Maine Municipal Association (of which I am presently a Director and immediate Past President) caused me to give some thought and study to centralized purchasing for the municipalities of Maine. If cooperative purchasing were good for department stores, grocery chains, utilities, and railroads it should be good for towns.

A flood of favorable replies resulted from questionnaires inviting cities and towns to participate in a purchasing agency covering such items as coal, both bituminous and anthracite, fuel oils and gasoline. The detailed information received gave the necessary facts on which to base Notice, Specifications and Bids.

Negotiations have been carried on with vendors so that we are now in a position to complete contracts and purchases of supplies, materials, commodities and equipment at favorable prices, terms and conditions. Lack of orderliness in buying was indicated by the wide spread in prices formerly paid by different communities —one town paying 17 cents per gallon for gasoline and another paying 32 cents. In one instance it was no problem to save money on gasoline purchases for a town that didn't even deduct the 2 cents per gallon federal tax on gasoline, from which all municipalities are exempt.

On coal, savings ran $3 to $6 per ton. Spark plugs cost one town 75 cents and now only 31 cents.

Groups of Towns

Most communities in Maine are small. The town officials are overworked. They have more important things to do than to negotiate small purchases. However, nearly all see the advantage in paying a small fee for having someone eperienced in municipal purchasing do the buying.

The Central Purchasing Agency of Maine is located in the Bank of Commerce Building in Portland.

LESTER F. WALLACE
City Purchasing Agent
Portland, Maine

They Purchase for Groups of Towns

THE Central Purchasing Agency of Massachusetts, located at 48 Meriam Street, Greenwood, Mass., operates similarly to and with the assistance of the Central Purchasing Agency of Maine, which is operated by Lester F. Wallace, purchasing agent of the City of Portland. Its primary functions are negotiating for the combined requirements of participating towns to effect savings. The actual purchasing is done by the towns, as is required by Massachusetts law.

Municipalities may avail themselves of the services of our Agency for a small fee which is based on population.

MARVIN E. ROSE
Central Purchasing Agency of Massachusetts

Helping New Hampshire Towns to Buy

THE Central Purchasing Agency of New Hampshire, opened on August 29, 1955, is patterned after and operated with the assistance of the Central Purchasing Agency of Maine.

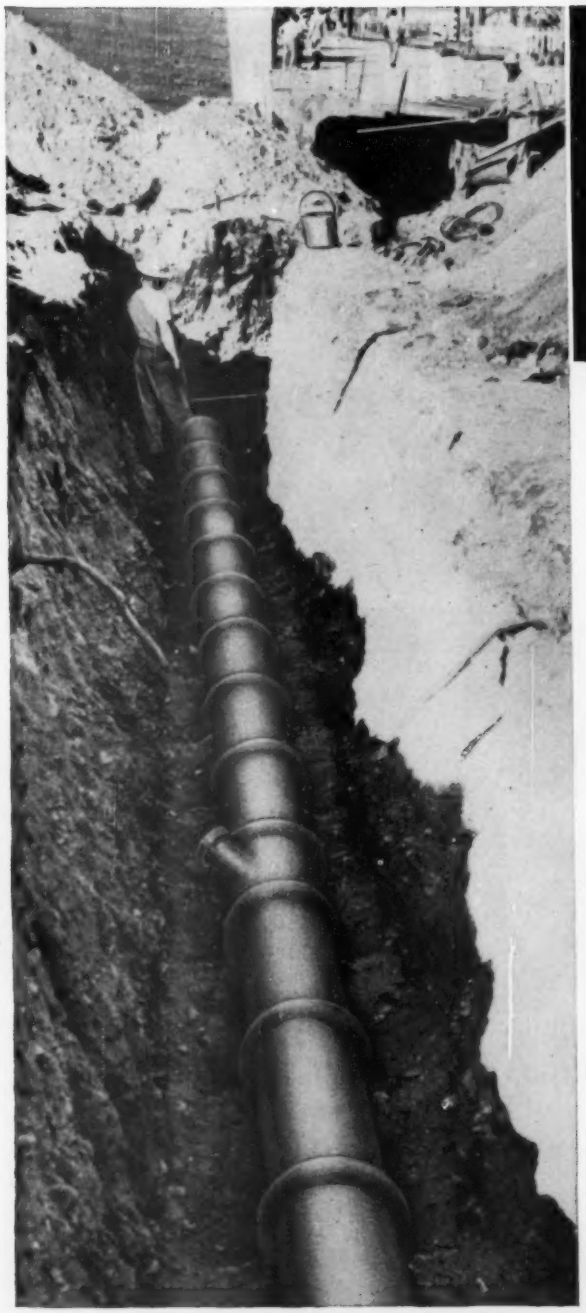
The Agency's primary functions are the pooling, coordinating, and negotiating for the combined requirements of participating municipalities. There are no legal complications regarding delegation of a municipal officer's authority to someone else since the Agency merely negotiates and does not purchase. Municipalities purchase directly from the vendor and are invoiced by the vendor.

The Agency also supplies specification and proposal forms when needed; market trends and new products; tax exemptions; planning to enable municipalities to take advantage of seasonal fluctuations in prices.

The fee for participation in the Agency is based on population; a minimum fee for the first 500 plus a small charge for each additional 500 or fraction thereof. Municipalities can participate by merely signing an agreement and paying the fee.

CECIL K. DRINKER, JR.
Central Purchasing Agency of New Hampshire
63 North Main Street
Concord, N. H.

EDITORIAL NOTE: The Central Purchasing Agency of New Hampshire, a private enterprise, is not connected with the purchasing department of the State of New Hampshire.



CLAY PIPE TRUNK SEWERS

Give Taxpayers More For Their Money!

SAN BERNARDINO, CALIFORNIA recently installed another 40,000 feet of Vitrified Clay Pipe to serve the needs of its rapidly growing population. The new lines meet an urgent need because San Bernardino, "Gateway to the California Mountain Resort Areas," has expanded from 56,000 people ten years ago to more than 80,000 today. With the addition of this latest Clay Pipe project, the entire incorporated area of the city is now served by a modern sewerage system.

San Bernardino is giving its taxpayers the most for their money by installing the only pipe that never wears out. No matter how large the city may grow . . . no matter what industrial wastes may be introduced into the lines . . . Clay Pipe is *sure* to last. Chemicals can't corrode it—time can't weaken it—generations of constant use can't cause it to fail. Vitrified Clay Pipe safeguards public health *permanently.*

The "Del Rosa" and "Rialto Bench" trunk line projects at San Bernardino were designed by the Currie Engineering Co. Construction was carried out by the Encon Corp., Los Angeles.

Vitrified CLAY PIPE

CLAY PIPE NEVER WEARS OUT!

NATIONAL CLAY PIPE MANUFACTURERS, INC.
1820 N. Street, N.W., Washington 6, D. C.

206 Connally Bldg., Atlanta 3, Ga.
100 N. LaSalle St., Rm. 2100, Chicago 2, Ill.
703 Ninth & Hill Bldg., Los Angeles 15, Calif.
311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

C-856-1

Progress in Public Health - Through Clay Pipe Research

GOOD ROADS SCAVENGER TEAM

ALL NEW!

CATCH BASIN ATTACHMENT CLEANS BASINS IN MINUTES!

● The Good Roads Catch Basin Attachments now enable the Scavenger to clean even the deepest catch basin in a fraction of normal cleaning time.

Wet or dry refuse — twigs, leaves, stones, bottles, etc. . . . are sucked into the Scavenger hopper, for easy disposal, without clogging. Deep-reaching snout does in minutes the job it normally takes two men many hours . . . leaves no mess.

MODERNIZES LITTER CLEANUP

Cuts Costs...Removal and Dumping Time up to 60%

Removal of litter, leaves and other accumulated debris (wet or dry), from miles of city streets, highways, parks, golf courses, etc., is quick and easy with this Good Roads Scavenger Team especially designed to speed clean-up operations.

Cities, townships, villages, and private owners report savings in removal costs up to 60%. Faster coverage . . . 2-man operation . . . fewer trips to dumping sites and extremely efficient pickup add up to savings that more than pay for the low initial cost during the first year of operation.

The Good Roads Scavenger Group Includes:

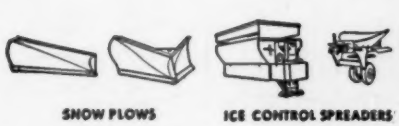
THE GOOD ROADS LEAF COLLECTOR—Completely new in design and performance is this self-contained, heavy-duty, litter-removing unit. It sucks leaves, litter, and debris (wet or dry), chops and grinds it into a fine mulch for quick, easy disposal. The sturdy flexible intake hose permits coverage of an 8-foot path and maneuvers into hard-to-reach places. Powered by a heavy-duty 4-cylinder industrial engine the Good Roads Leaf Collector is a favorite with maintenance departments because of its speed, efficiency, economy of operation and low maintenance. Available truck or trailer mounted. 14 cu. yd. hopper capacity.

THE GOOD ROADS SCAVENGER—The ultimate in litter removal, the Scavenger's powerful 6-cylinder industrial engine sucks debris through its large 12" intake tube into the big capacity all-steel hopper. The new, exclusive dust trap eliminates all dust. Available truck or trailer mounted, with hand or hydraulically operated hose. Catch Basin Cleaner attachment that does in minutes jobs usually requiring many hours. The Scavenger's huge hopper accumulates thousands of pounds of debris to be hauled away and dumped by its own hydraulic system.

THE GOOD ROADS LEAF LOADER—The Good Roads Leaf Loader is trailer-mounted, ready to hitch to any dump truck. The 4-cylinder engine drives a powerful fan that sucks up and mulches leaves and litter and blows it into the bed of the towing unit. The Leaf Loader is equipped with a rigid intake snout which permits automatic pickup of leaves in a 30" path. The snout is interchangeable with a flexible rubber intake hose for hand operation over wide areas. The Good Roads Leaf Loader is an economical unit designed to meet the requirements of small cities, parks, etc.

For detailed information on the Good Roads Scavenger Group write to:

GOOD ROADS MACHINERY CORPORATION • MINERVA, OHIO



SNOW PLOWS

ICE CONTROL SPREADERS

ESTABLISHED 1878 Good Roads MACHINERY CORPORATION

AGGREGATE AND ASPHALT SPREADERS

LEAF COLLECTOR

SCAVENGER

An Underwood Elliott Fisher flat writing surface accounting machine in operation on a City of East Orange payroll.

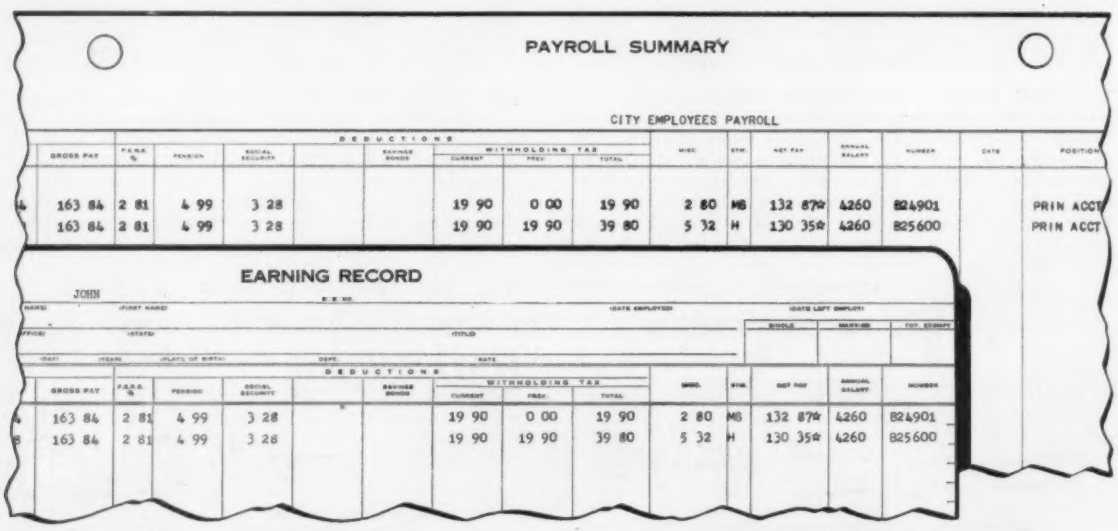
Flat Writing Surface Machine Prepares Payroll

FOR ten years the payroll of the City of East Orange, N. J. (population 79,340), has been prepared with the aid of Underwood Elliott Fisher flat writing surface accounting machines.

Work Load

Actually, there are 30 payrolls to be prepared bi-weekly, as separate records are made for each department for a total of 650 employees.

The machine is used to prepare the employees' earning cards, write the checks, and make duplicate journal sheets to be sent to the New Jersey State Civil Service Commission's Newark office. The commission checks names, titles, and annual salaries, and returns one of the approved copies to the City of East Orange. J. Easton Williams is auditor; Paul Quinn is assistant auditor.



PAYROLL SUMMARY

CITY EMPLOYEES PAYROLL

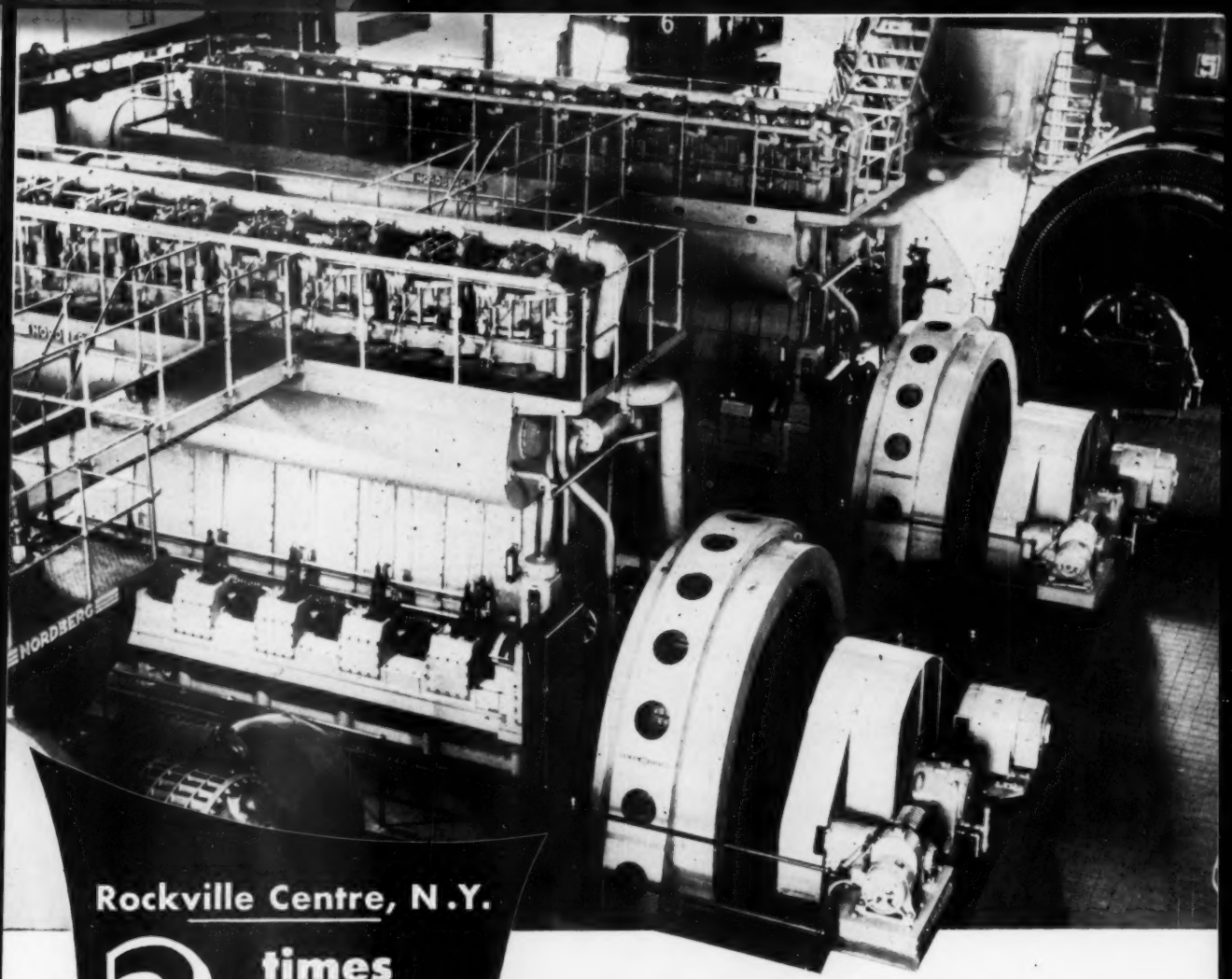
	GROSS PAY	DEDUCTIONS					WITHHOLDING TAX			MISC.	STA.	NET PAY	ANNUAL SALARY	NUMBER	DATE	POSITION
		P.F.R.S. %	PENSION	SOCIAL SECURITY		SAVINGS BONDS	CURRENT	PREV.	TOTAL							
4	163 84	2 81	4 99	3 28			19 90	0 00	19 90	2 80	MS	132 87☆	4260	824901		PRIN ACCT
	163 84	2 81	4 99	3 28			19 90	19 90	39 80	5 32	H	130 35☆	4260	825600		PRIN ACCT

EARNING RECORD

JOHN

	GROSS PAY	DEDUCTIONS					WITHHOLDING TAX			MISC.	STA.	NET PAY	ANNUAL SALARY	NUMBER
		P.F.R.S. %	PENSION	SOCIAL SECURITY		SAVINGS BONDS	CURRENT	PREV.	TOTAL					
4	163 84	2 81	4 99	3 28			19 90	0 00	19 90	2 80	MS	132 87☆	4260	824901
8	163 84	2 81	4 99	3 28			19 90	19 90	39 80	5 32	H	130 35☆	4260	825600

Employee's Earning Record backed by Payroll Summary Sheet prepared for the State Civil Service Commission.



Rockville Centre, N.Y.

3 times the power in the Same Space with NORDBERG DIESELS

Plant Reports Fuel Consumption of 14.77 KWH per gallon on NEW NORDBERG ENGINES

• Experience of the City of Rockville Centre, Long Island, N. Y., is evidence of the ability of Nordberg Diesels to meet increasing power requirements at low cost.

From their first small generator, installed in 1898, the present modern power plant has evolved . . . going from steam to diesel in 1927. By 1930, four diesels totaling 4600 hp occupied the entire original plant. These engines more than amortized themselves and are now gone. Today, four big Nordberg Diesels totaling 15,850 hp have replaced them in the Rockville Centre plant . . . *and occupy the same space as did the original four engines which produced only 4600 h.p*

Based on the excellent performance of the first two Nordberg engines, two more Nordberg units were installed in 1954. In referring to the performance of these units, Mr. C. P. Ketler, Chief Engineer, Public Utilities, Rockville Centre, writes . . . *"the kilowatt hours generated (in 1955) by the two 4500 hp Nordberg Diesels were 30,872,000, with a fuel consumption of 2,090,132 . . . or 14.77 KWH per gallon."*

Here is real proof of the installation and operating economy of Nordberg engines in modern power generation service. Write for further information, outlining your power requirements.

NORDBERG MFG. CO.
Milwaukee, Wisconsin

•

Builders of America's Largest Line of Heavy Duty Engines . . . 10 to over 12,000 hp.

NORDBERG

DIESEL • DUAFUEL® AND SPARK-IGNITION GAS ENGINES

© 1956, Nordberg Mfg. Co.

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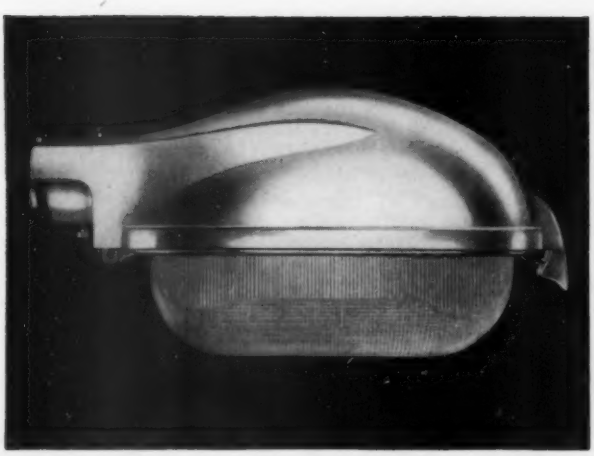
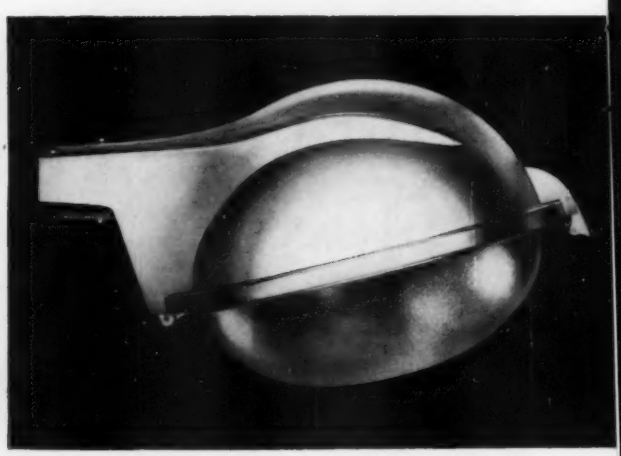


OV-20 uses 11,000-lumen CH-5, 15,000-lumen AH-1, 20,000-lumen EH-1, and 19,000-lumen JH-1 mercury lamps. Type II, III and IV distribution.



OV-60 uses 35,000-lumen AH-18, 33,000-lumen BH-18, 52,000-lumen AH-15, and 49,000-lumen BH-15 lamps. Type IV distribution.

New Westinghouse OV-35

. . . the first luminaire designed specifically for fluorescent mercury lamps

Westinghouse, pioneer in the development of mercury street lighting — the OV-20 and OV-60 — now presents the OV-35 luminaire which can be used with the 400-watt J-H1 or the 700-watt B-H18 fluorescent mercury lamps.

This third member of the Westinghouse mercury group now offers you a complete selection of mercury luminaires for any roadway application — regardless of width or traffic conditions.

The new OV-35 is the first street-lighting luminaire to include a completely sealed optical system — bugs, dirt or moisture cannot get in. Like the OV-20 and the OV-60, this new luminaire assures the best possible night visibility and a greater uniformity of pavement brightness. It inherits their same outstanding plus features, too . . . such as one-piece cast aluminum housing, new optical system, one-hand maintenance, and smooth good looks.

Whatever your roadway lighting requirements, be sure to specify Westinghouse mercury luminaires. More information? See your nearby Westinghouse representative. Or, write Westinghouse Electric Corporation, Lighting Division, Edgewater Park, Cleveland, Ohio. J-04405

WATCH WESTINGHOUSE!

COVER THE PRESIDENTIAL CAMPAIGN ON CBS TV AND RADIO!

Mayor Anthony J. Celebrezze and Euclid Avenue Association President John E. Carlin turn on Euclid Avenue's new downtown fluorescent lighting. Shown at top is a picture of the old twin incandescent lighting.

Cleveland's Midtowners

Hail Euclid's Fluorescents

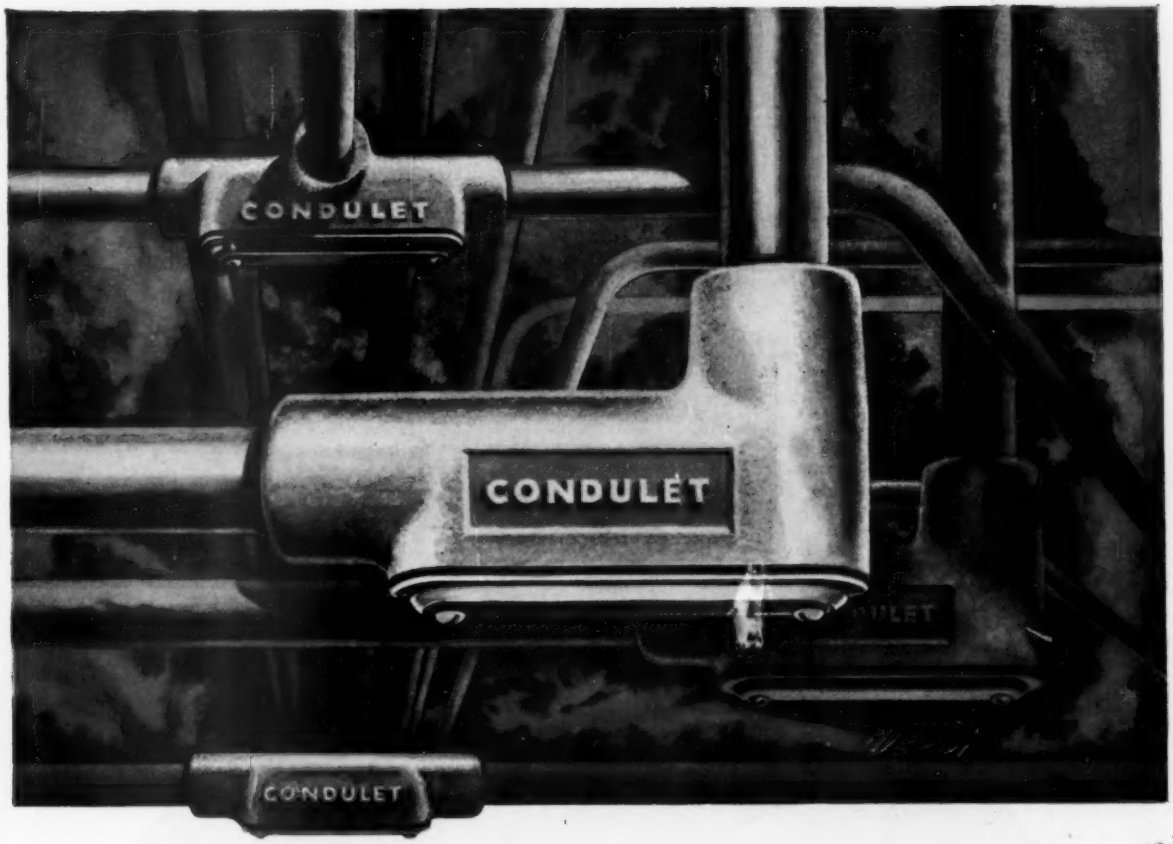
STREET lighting can do much to save Downtown. Not just any street lighting, but the type that makes the district seem freshly radiant as if it were being washed with light.

This is what the downtown merchants, property owners, and city officials of Cleveland, Ohio, hoped to achieve by the new lighting on Euclid Avenue. A new look, quickly realized, was needed to get Cleveland off "dead center." The business district is valued at $750,000,000. Here are big department stores, government buildings and office buildings, theaters, newspapers, restaurants, financial institutions, hotels, convention halls—all packed into a "Luminous Lane." Indeed, the lumens of light from the 128 new fluorescent street lights lining both sides of Euclid Avenue are thrown directly on the pavement. This is what gives the street the clean modern look it never had before. Still greater values are building . . .

- excavations are being made for a $75,000,000 system of arterial highways that five or six years from now will rim and ring the downtown area in an Inner Belt Freeway
- power steam shovels are digging the foundation for a new $17,000,000 downtown office building that will be completed in 1957
- Cleveland gets ready for the hoped-for stimulus of being an ocean port when the St. Lawrence Seaway is opened in 1959

Nothing Beats

CONDULETS* and RIGID CONDUIT for FLEXIBILITY, SAFETY, ECONOMY



- **INSTALL ANYWHERE.** Crouse-Hinds Condulets and rigid conduit operate safely and efficiently under all atmospheric conditions and in all occupancies.
- **INCREASE CAPACITY EASILY.** You don't have to tear out and replace the entire system: merely pull additional wires or put in a larger size.
- **ASSURES MAXIMUM SAFETY.** Condulets are Taper-Threaded to provide a permanent low resistance path to ground.
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- **LOWER OVER-ALL COST.** First cost is the entire cost — a minimum of maintenance is required.

COMPLETE FLEXIBILITY

There's a Condulet to meet every need of complex modern electrical layouts. See your Condulet Catalog.

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*CONDULET is a coined word registered in the U.S. Patent Office. It designates a product made only by the Crouse-Hinds Company.

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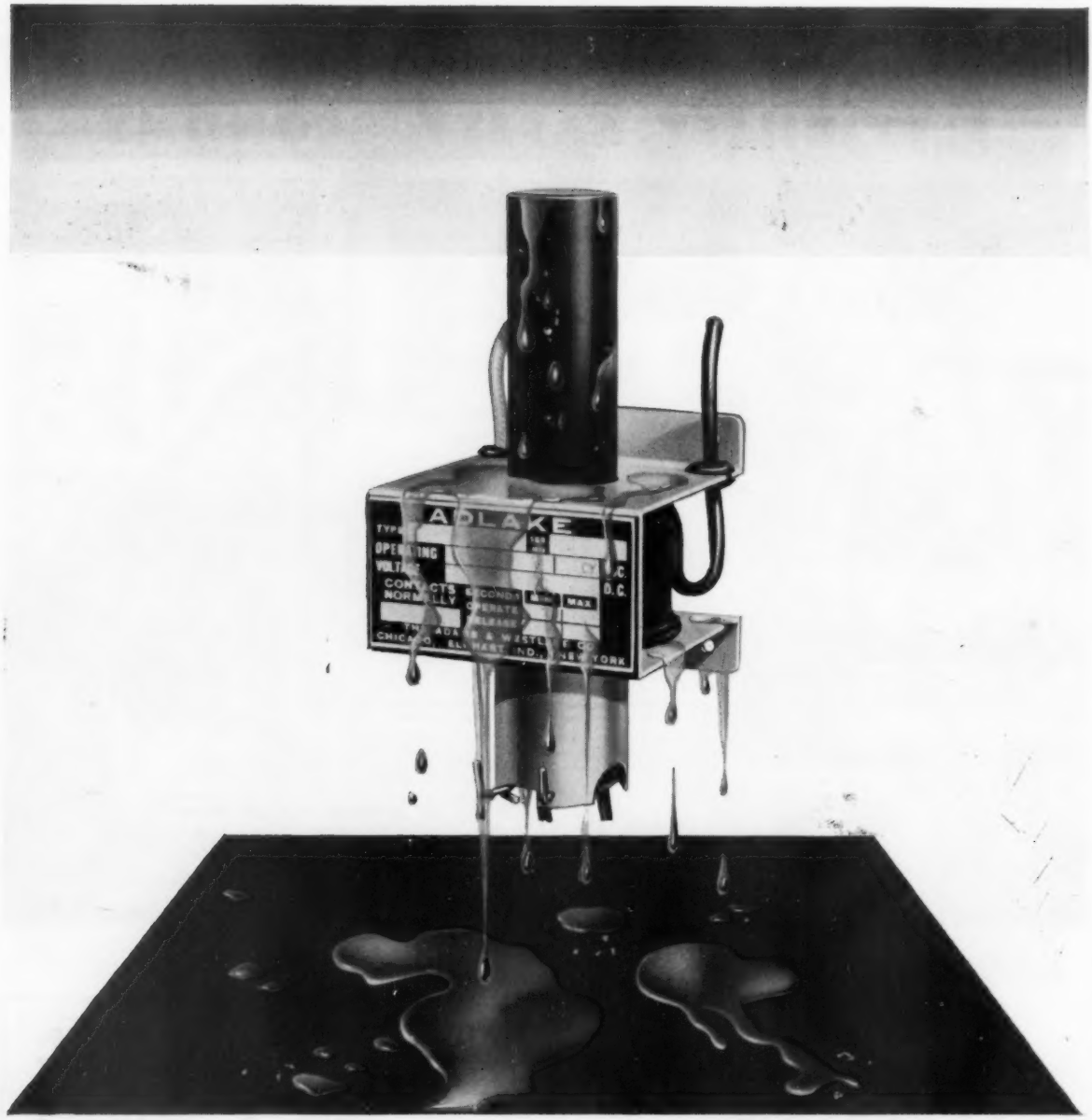

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the *original* and largest manufacturers of mercury plunger-type relays

- plans are being projected for more downtown parking running to millions of dollars
- now Euclid Avenue has blossomed with new lighting at a cost of only $50,000!

Lighting Saves Money

This fluorescent lighting will result in a saving to the taxpayer of $5,000 a year, for the new lamps use less electrical energy than the old lamps.

"The trick," explains Lighting Commissioner Vince DeMelto, "has been to direct more of the street lighting onto the streets and sidewalks. There is no other main street in the world that has better street lighting than downtown Euclid Avenue."

Each fluorescent contains four 100-watt tubes, which provide 21,400 lumens of light. The old twin-light fixtures, equipped with two 1,000-watt lamps, dispensed 40,000 lumens but wasted half. The new lamps throw 1.67 foot-candles on the pavement, while the old provided only 0.7 foot-candles of street illumination. The old lamps required 1,024,000 kilowatt hours per year to give half the street illumination it is estimated the new lamps will provide at a consumption of 256,000 kilowatt hours.

Says Commissioner DeMelto:

We now are anxious to extend this popular lighting through more of the downtown area. Merchants and property owners feel it helps the over-all attractiveness of downtown considerably. You might say the fluorescents have been a beacon to downtown business. The lighting has given a dash of excitement to downtown. The uniformity of the lighting makes the buildings look younger! One of these days soon I would like to stand in our Public Square and be able to look up and down all the streets that run through it, East and West and North and South, and see new street lighting. For the Public Square proper, we might even go to larger fluorescents.

First Street Lighting

Cleveland's Public Square is the center of downtown (originally laid out by Moses Cleveland's engineers in 1794) and saw the world's first electrical street lighting.

It was here that Charles F. Brush demonstrated his arc light street illumination on April 29, 1870, dooming gaslights. Mr. Brush rigged his lamps on top of 150-foot standards and placed them about the Square. Clevelanders who journeyed to the Public Square that night in 1879, by horse and buggy and on foot, carried smoked glasses to protect their eye sight. At 8:05 p.m., at a given signal, the Brush lamps were turned on, and, as one newspaaper account described it, "A dazzling glory filled the park!"

"Our plans and projects to make downtown more attractive have been substantially pushed forward—almost overnight—by these new street lights," says Raymond S. Bieber, director of Cleveland's Euclid Avenue Association. Our business people have always been strong believers in good street lighting. When the last improvement in downtown Euclid Avenue lighting was made in 1928, the property owners themselves paid for it at $5 a front foot and on each side of the street. The fact that the city, this time, has taken over the cost of the new lights is further recognition of the community-wide value of modern street lighting.

"Of course, it helps tremendously in increasing the popularity of our Monday night downtown shopping. This is a very big night for the merchants, and it has made Monday an important downtown shopping day. The Cleveland Transit System tells us that on their east and west Rapid Transit lines alone they carry from 10 to 12% more riders into the center of town on Mondays. In Cleveland, downtown shopping on Monday night is as big as traditional Saturday shopping. With a well-lighted downtown Euclid as part of the attractive atmosphere for these night shoppers," adds Mr. Bieber, "all downtown benefits."

The merchants' viewpoint on the value of good street lighting in helping to save Downtown U.S.A. is further expressed by David H. Scholl, general manager of Wm. Taylor Sons Co., one of the six large department stores that are a part of this golden hub of metropolitan Cleveland. These six department stores do an aggregate annual business in excess of $200,000,000—a figure that is surprising to a good many Clevelanders who are accustomed to taking their downtown for granted.

"The new lights are a decided help," says Mr. Scholl. "People don't come downtown at night simply because we have new street lights, but the lights have added to the general pleasantness and safety of downtown. We spend a good deal of money on window displays. Good street lights tend to induce more window shopping."

Eating Downtown Costs $30,000,000

Restaurants, too, are a major part of the downtown scene in bigtown America. And, again, Cleveland is illustrative.

In figuring how much is at stake in saving the heart of the city, one must include all that is involved in downtown dining. Here is another big, going business, and more millions of dollars can be added to the $750,000,000 value of downtown land and buildings and the better than $200,000,000 a year that is spent in the department stores.

Figuring conservatively, the Northeastern Ohio Restaurant Association estimates that at least 75,000 people have lunch in downtown Cleveland restaurants and cafeterias on an average weekday, with an average tab of $1.10 apiece. Not counting Saturdays or Sundays, this would indicate a food expenditure of $412,500 a week, or $21,550,000 a year—just for lunch! Add to that a smaller volume of business on Saturdays, when most downtown offices are closed, and you would push the estimated yearly downtown lunch expenditure in the restaurants to $25,000,000.

Night dining in the center of town also adds up. Restaurant men figure 10,000 people eat dinner in downtown Cleveland at $1.75 for a total of $5,500,000 a year. Thus, the total downtown Cleveland restaurant business is at least $30,500,000.

"The pulling power of downtown is important to us, and we are interested in anything that will maintain it or improve it," says Vernon B. Stouffer, president of the nationally-known Stouffer Restaurant chain, which operates two large restaurants along Cleveland's fluorescent-lighted downtown Euclid Avenue.

Hotels, too, have a vital interest in saving downtown. In Cleveland's midtown section there are six hotels with 3,500 rooms. An average week's occupancy of these rooms runs to approximately 25,000. Projected over a year, this means about 1,300,000 hotel guests in downtown Cleveland annually.

"Of course, most of them are transients," says Ray-

mond S. McSoley, manager of the Cleveland Statler, "and they don't have much chance to get outside downtown. In our business, the area immediately surrounding the hotel is the city's showcase. A good looking downtown is a quality we can sell first.

"People come here from other cities and they can't help but compare downtowns. Street lighting makes a big difference. No one wants to look into a poorly-lighted showcase. I feel that this stretch of Euclid Avenue through downtown Cleveland is outstanding in the United States for its lighting, and I am very happy that the Statler is on it."

Visitors to Cleveland talk about the new street lights. Edward C. Brennan, executive vice president of the Cleveland Convention and Visitors Bureau, says that out-of-town residents who haven't been in Cleveland in the past year or two notice the change. "The attractiveness of downtown is an important factor in bringing conventions to Cleveland." Last year 180,000 people from out of town attended conventions in Cleveland, spending around $110 apiece for a total of $19,800,000. "No wonder," adds Mr. Brennan, "that we listen closely when convention delegates tell us they like our new street lights. Our feeling now is that we need more of them."

Those who study the needs of Downtown U.S.A. today, as the march to the suburbs continues, agree that glamour and excitement are essential. Here, the fight is against dullness.

A Theater Man on Street Lights

And it is the motion picture theaters that provide most of the gaiety left in Downtown U.S.A. Take the movie houses out of the downtown and they would be dull places indeed. In Cleveland there are 10 downtown motion picture houses, seven of them showing first-run films. Their combined seating capacity is 20,300. In an average week they play to 125,000 people, and on a Saturday night they pull 20,000 to 25,000 people downtown. Replacement value of these theaters, figured at the rate of $500 per seat (used in most insurance company estimates) amounts to $10,150,000.

"You don't have to ask a theater man if he believes in good lighting," says Frank Murphy, Cleveland division manager of Loew's Theaters. "All you need do is look at our marquees. I can tell you right now exactly how many lamps we have in our Loew's State Theater marquee. The figure is 660.

"The new fluorescent street lights on Euclid go right past our three theater fronts (State, Stillman, and Ohio) and they give the entire avenue a nice, even spread of light. But prior to this modern street lighting, marquees of movie houses were regular islands of light. Even before electric lights, in the gas light days, bright illumination was a fundamental of show business. When anyone talked about the city's 'bright lights' he generally meant theaters.

"Light brings business to our box offices. In fact, anything that helps keep the downtown section from looking dull, is of benefit to us. The new street lights are a big improvement. Certainly they make downtown a more pleasant place to visit, and that is a big factor in a business like ours where women have most of the 'say.' And women are hesitant about going into dimly-lighted areas.

More than some large cities, the core of Cleveland's downtown derives a good deal of its magnetic pull from special events, commercialized sports, big shows like the Home and Flower Show, and major theatrical attractions such as Metropolitan Opera. All these bring millions of people into the downtown area in a year, since the city's Municipal Stadium, Public Hall, and Music Hall are located in the center of town. These three public buildings, alone, have a replacement value of $38,000,000.

The crowds that attend events in these buildings make downtown street lighting even more important. Together, the Stadium, Public Hall, and Music Hall drew close to 3,000,000 people last year. Of the 1,221,000 who attended Cleveland Indians' home games in the Stadium 570,000 saw eight games. The Cleveland Browns had an attendance of 251,000 in the Stadium at its six home games in 1955. The Metropolitan Opera, which attracts visitors to downtown Cleveland from all northern Ohio, drew 50,000 in Public Hall; the Automobile Show, 103,000; the Sportsmen's Show, 109,000; the Grotto Circus, 90,000.

Big property owners believe that downtown Cleveland is progressing, though there is still much to be done. Harry Wells, who represents one of the largest downtown properties as manager of the Union Commerce Building, talks about the fluorescent lights along with air conditioning and new elevators.

Edmond C. Powers, educational director of the Street and Highway Safety Lighting Bureau of Cleveland, whose chief concern is the application of light to make travel safe at night, expressed pleasure over modern street lighting's contribution to better business and a more enjoyable downtown after dark.

"Adequate street lighting saves lives, prevents injuries and reduces property damage by reducing night traffic accidents," Powers said. "When a facility improves business and makes living more fun, in addition to preventing injuries and loss of human life, not to mention grief and suffering, who could help feeling gratified?"

The Equipment

THE street lighting installation on Euclid Avenue uses Westinghouse fluorescent street lighting luminaires containing four 100-watt rapid-start 1,000 milliampere lamps. Euclid Avenue is 60 feet wide, and the luminaires are mounted opposite each other with a 90-foot spacing between luminaires.

For this installation the Union Metal Manufacturing Company of Canton, Ohio, designed and made a pole extension that could be used with the poles that had been in use on Euclid Avenue for 28 years. By using this pole extension the fluorescent units are mounted at a height of 30 feet above the roadway. This installation provides an average illumination of 2.09 footcandles maintained in service. The illumination is uniform, having a ratio of 1 to 1.6 when comparing the minimum lighting intensity to the average intensity.

The installation and purchasing of the equipment was by the Municipal Electric Lighting Division of the City of Cleveland.

W. C. YOUNG, Asst. Manager
Outdoor Lighting Sales
Westinghouse Electric Corp.
Cleveland, Ohio

Which town will he choose?

Good street lighting is good civic advertising. Both industry and commerce are favorably attracted to a well-lighted community. In fact, one progressive mid-western town found that its rate of industrial growth climbed 75% above the state average after it installed a modern street lighting system.

Trade, too, is attracted by light. Cheerful, well-lighted streets attract more shoppers . . . and put them in a buying mood. Local residents suddenly do more local shopping; more out-of-towners are attracted to do business in the well-lighted city. And finally, good lighting is bound to raise and stabilize real estate values in your important downtown areas.

Good street lighting is good business . . . it's the best promoter your community can have.

"Out of Darkness," a new, dramatic film story of how one community met its street lighting problems, is now available to civic groups, community service organizations, etc. This 16-mm, sound, black and white movie runs 26 minutes. Borrow a print of "Out of Darkness" from your nearest G-E Apparatus Sales Office.

Section M455-11
Outdoor Lighting Department,
General Electric Company, Schenectady 5, N. Y.

Please send me a free copy of the 24-page bulletin, "Light the Way to a Better Community," GEA-6047.

Name_____

Street_____

City and State_____

Progress Is Our Most Important Product

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New Bright Beacons on Empire State Building

F. M. Sloan (left), vice president of the Westinghouse Electric Corporation in charge of the lamp division, and Fred Glass, executive vice president of the Empire State Building Corporation, examine one of the new two billion candlepower beacon lights on the Empire State Building.

THE new two billion candlepower beacon lights atop the Empire State Building in New York City, are little larger than a billiard ball.

"These are the brightest continuous-burning lamps ever manufactured," according to F. M. Sloan, vice president in charge of the Lamp Division, Westinghouse Electric Corporation. Short-arc mercury-vapor lamps not only have high light intensity, but they can be remotely operated as well. The beacons are now economically practical for all-night operation by remote control without an operator in constant attendance at each searchlight. The result is lamp costs reduced by four times because of longer life and less maintenance.

The beacon lights and the special power system used to turn them on are first in the art of lighting. The 2,500-watt beacon lights are the brightest. The portable electroluminescent power system, also developed by Westinghouse, is the first to employ a transistor circuit.

Kansas City, Kans., Relights

MODERNIZATION of the street lighting along all major streets and trafficways throughout Kansas City, Kans., was begun in 1951. The program of the Board of Public Utilities contemplated the joint investment of $150,000 annually with the city in a projected 5-year program to cost $750,000.

This program was developed in cooperation with the Board of City Commissioners. The Board of Public Utilities agreed to allocate the annual payment for street-lighting service received from the city amounting to $75,000. The city agreed to provide $75,000 worth of street-lighting fixtures and equipment annually. Last year, a new installation of 506 modern street lamps was completed along ten miles of trafficways. To date, lighting has been modernized on a total 34.5 miles of trafficways.

Pittsburgh Airport's Giant Illuminated Fountain

(Featured on the front cover)

A BLOCK-LONG fountain and water display—a memorial to Allegheny County war heroes—has been drawing increasing attention from travelers and visitors at the Greater Pittsburgh Airport. Sightseers have tossed hundreds of dollars into the glimmering fountain in an effort to make friends with Lady Luck. The problem of what to do with the money scooped out of the fountain by the county was solved when Airport Director John B. Sweeney decided to donate all such "contributions" to the Pittsburgh Press Old Newsboys Fund for use at Pittsburgh's Children's Hospital.

The giant electric fountain, built late last year at a cost of a quarter of a million dollars, has taken its place beside the Golden Triangle and the modern new Alcoa Building as one of the Steel City's outstanding landmarks. Allegheny County Aviation Director John B. Sweeney calls it "the airport's final touch of elegance. It's certainly one of the most beautiful fountains in the country and rivals even the celebrated fountains of Rome."

The six-tiered water display, one of the largest electric fountains in the world, consists of a central basin and five stepped reflecting pools. It has 110 jets capable of pushing multicolored water plumes 75 feet into the air.

At night the entire display is illuminated by a series

Famed fountain at Pittsburgh's municipal airport is believed to be the world's largest electrical fountain. It is 402 feet long with a central basin 75 feet wide and holding 175,000 gallons of water.

of ground-level and underwater floodlights. The plumes hurled into the air from the central basin are illuminated in blue, violet, red, orange, and green, while the reflecting pools and cascades are lighted in violet, red, orange, yellow, and green. A specially designed sound system has been built into the fountain to provide soft music for sightseers and passersby. Surrounding the mammoth water display are 12 landscaped gardens.

All electrical components for the fountain, including floodlights, meters, and controls, were supplied by the General Electric Company, Schenectady, N. Y. The contractors who constructed the fountain are: Groomes Construction Co., Cheswick, Pa., general contract; E. C. Ernst, Inc., 7025 Campania Ave., Pittsburgh 6, Pa., electrical contract; W. R. Davies, 6110 Ravenna St., Pittsburgh 6, Pa., plumbing contract.

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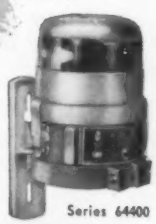
Any utility field man who has installed a Fisher-Pierce photoelectric control knows firsthand the many advantages of its clean, straightforward design. He appreciates, for example, time-saving plug-in installation of the one-piece electronic head; the ease, speed and safety with which he can handle compact F-P controls; the clean meter plate that has nothing to interfere with external wiring; the easily checked fuse. He knows the weatherproof glass enclosure design gives him quick, easy access to the control chassis; that he can orient an F-P control after mounting; and that component layout permits trouble-free servicing as well as maximum impulse strength. These advantages are important to the utility itself as well as the field man, since they mean rapid, low-cost installation and substantially reduced maintenance. Only F-P controls provide these advantages, *plus* these four other important features:



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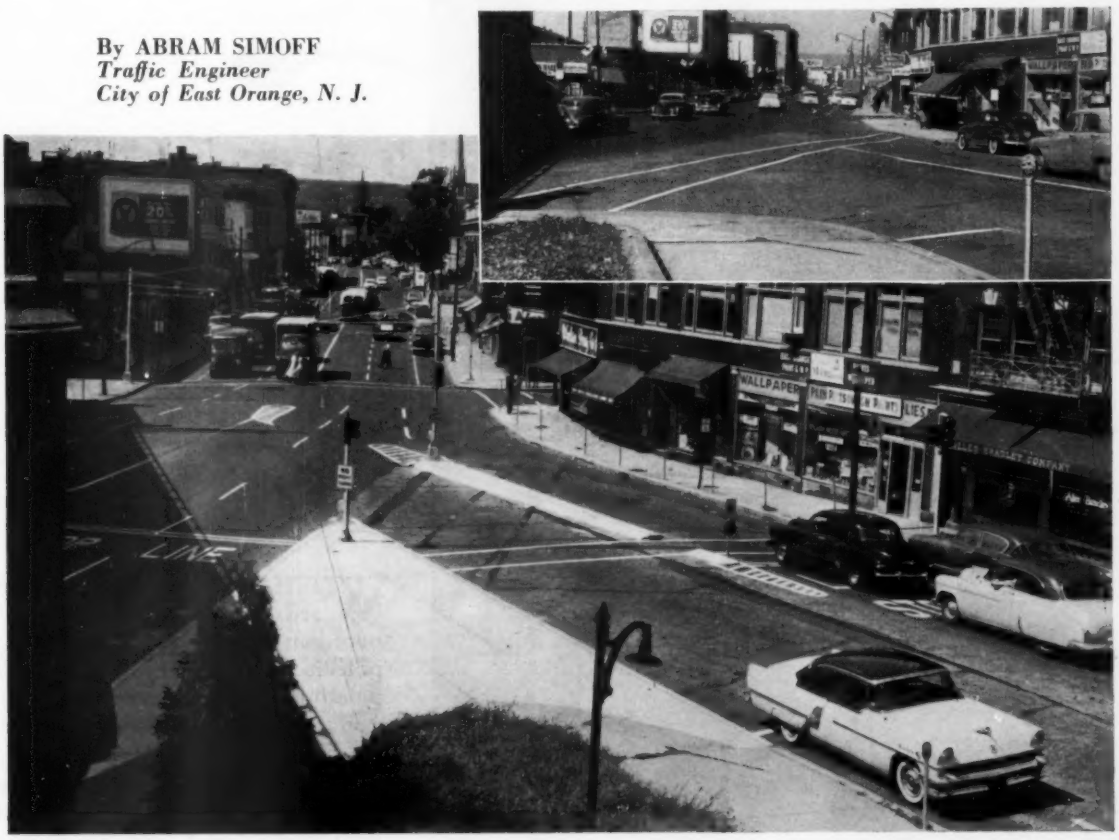
By ABRAM SIMOFF
Traffic Engineer
City of East Orange, N. J.



Before (inset) and after signalization at the intersection of Main and Winans Streets in East Orange, N. J. The side street was made one-way. The *first phase* is a continued green arrow installed at the far left to move traffic in the far lane forward while traffic in the right-hand lane of the same street is moving in the opposite direction. The *second phase* is traffic moving toward us in the second lane (where large truck is located) at the same time as traffic in the far right. The arrow at the far left is still green; however, traffic at the STOP LINE (left foreground) is halted. The *third phase* is a pedestrian phase. When button is pushed all vehicular traffic is stopped. However, there is also pedestrian protection for the lower right cross-walk when phase one is in operation. All traffic signal controllers, both fixed time and vehicle actuated, are products of the General Electric Co.

Putting Science into Traffic Control

IMPORTANT as is parking—vitally important—it is moving traffic that kills and maims and costs time, tempers and tears. This is a story of making stalled traffic move and moving traffic move more easily. The method is to put science into traffic engineering, as illustrated by the accompanying photographs and the time-space diagram, which worked out the schedule by which cars can move in either direction along Main Street at 27 mph without being stopped.

Program Two Years Old

These innovations were all made here in the last two years. East Orange is one of the few New Jersey cities having a separate Traffic Engineering Division. Before June 1954, "traffic control" was the charge of the superintendent of police telegraph and fire alarm. One intersection had been signalized in the preceding five years. Since then, 20 intersections have been equipped with traffic signals.

East Orange is the only New Jersey municipality to install signal equipment, including underground conduit and wires, maintain the system, and arrange for its modernization. This is made possible by our having a maintenance bureau and shop. The modernization and innovations and solutions are devised on the basis of the records kept up to date on accidents in the municipality and the volumes of vehicles and pedestrians.

We have all our proposals for new traffic lights checked and approved by the State Bureau of Traffic Safety. We obtain this approval in three months against two years for other New Jersey municipalities. Our secret is merely in preparing our proposal for

WHEN HY-LITES GO IN MAINTENANCE GOES OUT

WITH Hy-Lite Spun-Crete Standards, maintenance becomes a problem of the past. Their water-polished granite finish never requires painting. The original handsome appearance remains throughout the years.

In addition to maintenance savings, Hy-Lite Standards offer valuable installation gains. They are available with precast butt foundation, spun as an integral part of the lighting standard. No need for costly anchor rods or cast-in-field foundations.

Add to the features today's latest Hy-Lite development — *prestressing.* This means greater strength, superior ability to withstand weather extremes, and longer life. In short, you can see that *Hy-Lites have no equal.*

For complete information and dimensional data, write today to the American Concrete Corporation, 5092 North Kimberly Avenue, Chicago 30, Illinois.

◀ *Hy-Lite Standards add to the attractive appearance of streets and highways while providing dependable support for modern luminaires.*

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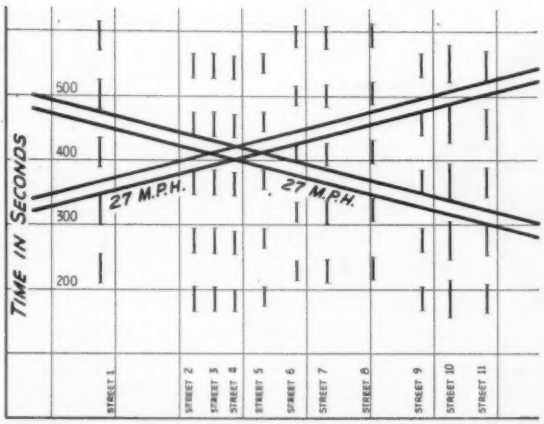


This is a time-space diagram illustrating maximum green time for Main Street with a realistic traveling speed. Using a 60-second time cycle, a car can travel this 1.7 miles of Main Street in three and three-quarter minutes at a rate of 27 miles per hour without being stopped by a red light. The tabulated time schedule (right) provides Main Street with a maximum of 57 seconds of green light and a minimum of 29 seconds at the only intersection to drop below 40 seconds of green. The 12 cross streets receive a range of 55 to 27 seconds of green. The offset (last column) is the "lead" time between adjacent signals in order for the motorists to hit the green periods.

TIME SCHEDULE

ALONG MAIN STREET

INTERSECTION	GREEN SEC.	GREEN %	AMBER SEC.	AMBER %	RED SEC.	RED %	* OFFSET SECOND
MAIN STREET STEUBEN STREET	57	63.4	3	3.3	30	33.3	0
	27	30.3	3	3.3	60	66.7	
MAIN STREET GROVE STREET	42	46.7	3	3.3	45	50.0	54
	42	46.7	3	3.3	45	50	
MAIN STREET NORTH BOUND SERVICE RD.	49	54.5	3	3.3	38	42.2	4
	35	38.9	3	3.3	52	57.8	
MAIN STREET SOUTH BOUND SERVICE RD.	49	54.5	3	3.3	38	42.2	4
	35	38.9	3	3.3	52	57.8	
MAIN STREET MUNN AVENUE	52	57.8	3	3.3	35	38.9	0
	32	35.6	3	3.3	55	61.1	
MAIN STREET ARLINGTON AVENUE	57	63.4	3	3.3	30	33.3	4
	27	30.0	3	3.3	60	66.7	
MAIN STREET WINANS STREET	57	63.4	3	3.3	30	33.3	41
	27	30.0	3	3.3	60	66.7	
MAIN STREET WALNUT STREET	52	57.8	3	3.3	35	38.9	46
	32	35.6	3	3.3	55	61.1	
MAIN STREET CLINTON STREET	52	57.8	3	3.3	35	38.9	50
	32	35.6	3	3.3	55	61.1	
MAIN STREET HALSTED & LINCOLN STREET	51	56.7	3	3.3	36	40.0	4
	33	36.7	3	3.3	54	60.0	
MAIN STREET PROSPECT STREET	29	32.2	3	3.3	58	64.5	14
	55	61.1	3	3.3	32	35.6	
MAIN STREET HARRISON STREET	41	45.6	3	3.3	46	51.1	8
	43	47.8	3	3.3	44	48.9	

* OFFSET IS MEASURED FROM BEGINNING OF GREEN TO MAIN STREET AT STEUBEN-GREENWOOD.

quick comprehension and no trips necessary to East Orange. We supply three copies of the locations of the new signals, a 10-hour count of vehicles and pedestrians, recommended timing, possible offsets, time-space diagrams involving surrounding streets, and point out hazards and accidents warranting the signals.

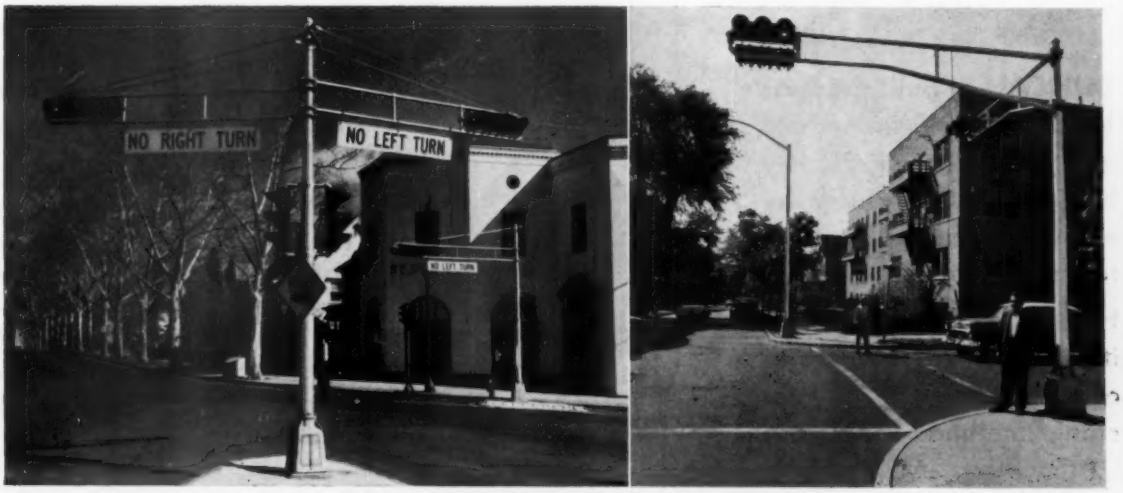
A parking survey revealed the need for 1,500 off-street parking stalls. This element of traffic facilitation is in the hands of a Parking and Traffic Committee consisting of three members of our governing body, the city engineer, and traffic engineer. All control problems in our parking areas will be resolved in a parking ordinance. It will establish regulatiors, fix fees, provide penalties, and apply to all lots.

Main Street Lights To Be Coordinated

Orange, E. Orange Studies Underway For Synchronizing

Cooperation Opens Door To Solving Mutual Problems

Newspaper report in the East Orange (N. J.) *Record* for June 7, 1956 on coordinating effective traffic signal program with neighboring municipalities, so that traffic will not only move through East Orange but through abutting communities as well.



A two-phase operation at Washington, William, and North Harrison Streets (left) eliminating certain turns in order to reduce the number of possible conflicts. This is a five-throat intersection allowing one throat to merge with the initial phase. This throat has a "no left turn" prohibition. The initial phase also eliminates the right turn. The second phase is a conventional movement allowing the motorist to negotiate any turn he desires. Note the aluminum standards and trombone-like brackets developed by Pfaff & Kendall, Newark, N. J. At right, at North Walnut and Williams Streets, is the latest of this design with the tierods eliminated. Standing beside the traffic signal pole is the author.

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Motorcycle Doubles Meter Revenue In Tifton, Ga.

Revenues rose considerably when a new Harley-Davidson speeded up meter checking by Officer O. D. Scarborough.

EARLY this year parking meter revenue in Tifton, Ga., plummeted to an average of only 28 cents per meter per week, less than $15 per year. Chief of Police P. J. Renew and City Manager Shell E. Hartley asked why, and the answer was quickly forthcoming. Tifton's Dual parking meters were being serviced by a foot patrolman.

The job was just too much for one man afoot. It left the parkers largely on their own. The City Commission applied the solution in the form of a Harley-Davidson three-wheel servi-car. In six weeks weekly revenue rose to 60 cents per meter.

Mastering Traffic Flows

ELECTRONIC computing equipment, which includes electronic secondary controllers as well as the master controller, has been installed in Atlanta, Ga., Chattanooga, Tenn., and San Antonio, Texas. It ties traffic signals to the moment-by-moment needs of traffic. The master controller is performing in Baltimore, Denver, Fort Wayne, Houston, Los Angeles, Mobile, New Orleans, Philadelphia, San Diego and Vallejo (Calif.), and in Winston-Salem, N. C. The purpose of this electronic system is to move volumes of traffic with increased efficiency.

Accurate Traffic Data Needed

Such coordination requires accurate traffic data. These are supplied by sampling detectors located at key points. For instance, there are five of these in the Chattanooga system, as described in THE AMERICAN CITY for April 1956 (p. 148).

The master controller, made by Automatic Signal Division of Eastern Industries, Inc., Norwalk, Conn., measures the sampled volumes, determines the predominating direction, and selects the steps in timing. The timing is continuously adjusted to meet traffic demands.

This new master controller can be used to coordinate a series of semiactuated intersections as in Philadelphia. (See THE AMERICAN CITY for January 1956, p. 127.) It samples traffic in both directions on the artery and sets up the most favorable cycle length and an offset pattern to favor inbound, outbound, or evenly divided traffic flow. Under this master-set cycle, each local controller keeps its semiactuated status and endeavors to contribute more green time to travel on the artery. The master is also used to coordinate city grids. Detectors are located to reflect volume and direction of traffic on the grid as a whole.

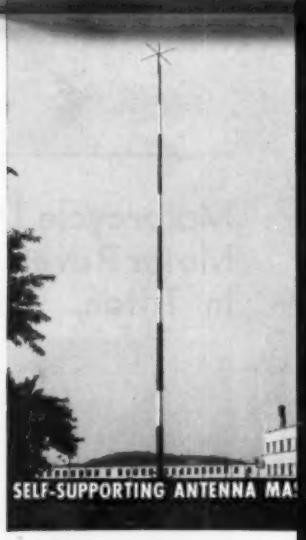
A Look at the Master Controller

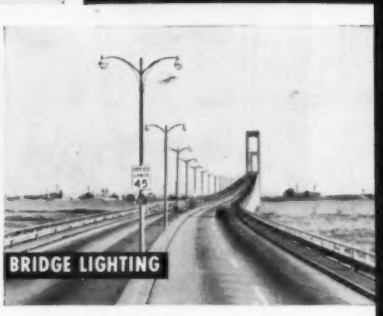
The Electromatic Master consists, from the top down, of three principal systems. They are the cycle computer, the system selector, and the cycle generator. The first measures vehicles per hour per lane. The second selects the time cycle and offset progression suited to the over-all system. The third sends to each intersection the control frequency corresponding to the master cycle selected.

Being electronic, the master controller has no moving parts. Tubes are operated well below rated capacity. The equipment is designed for moderate maintenance and operating cost, as well as to wrestle successfully with today's traffic economy.

THIS CARTOON BY HENRY BOLTINOFF APPEARED IN THE CHRISTIAN SCIENCE MONITOR.

"They're always thinking up new ways to make money at City Hall!"





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UNION METAL

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This photograph shows the shoulder stripe in place on U. S. Route 89, about 25 miles north of Nogales.

Arizona's

Reflectorized Shoulder Stripe

By WILLIAM E. WILLEY*
Arizona State Highway Engineer

THE national standard for a two-lane primary highway calls for two 12-foot traffic lanes with two 10-foot shoulders for a total roadway width of 44 feet. In Arizona, as well as in several other western states, because of the rugged mountains and as an economy measure the width of the shoulder has been reduced to 8 feet, making a roadway 40 feet across.

Arizona Practice

For a number of years it has been the practice in Arizona to place a uniform subgrade and finished grade together with an asphalt pavement the entire width of the roadway. This practice resulted from the decision to build maintenance in the original highway, by eliminating the rough edge at the standard 12-foot lane width and by doing away with grading operations on the normally unpaved gravel shoulder. It also acts as a roof over the entire section and keeps moisture out of the subgrade. No distinction is made in color or texture between the two travel ways and the shoulders.

For all practical appearances, the road is a two-lane highway with 20-foot lanes instead of the normal 12. The material engineers believe this is good because wear on the roadway is distributed over a wider area and tends to eliminate ruts and preserve the pavement by keeping it alive. But beginning in 1946, some of our newest 40-foot highways with modern sight distance and with good alignment were the scene of some of the worst accidents in the state's history. The accident record in Arizona leaves much to be desired.

For the last two years most of the accidents have been of two general types: that in which a car drives off the shoulder and someone is killed in a single-car accident, and that in which a car crosses the centerline causing a head-on crash which usually results in five or six fatalities.

Shoulder Stripes

To remedy both these undesirable occurrences, it was decided to start with a shoulder stripe 1 foot from the edge and, too, that one-half as much paint would be used on each shoulder as was placed in the center stripe. The Arizona standard centerline marking is a white dash 15 feet long separated by 25-foot blanks. The stripe has a width of 4 inches. The first section tested was a 15-mile

(Continued on page 196)

* Mr. Willey, a member of the American Society of Civil Engineers, is technical advisor to the Special Legislative Highway Study Committee of the Arizona legislature, and Vice-President of the Western Association of State Highway Officials.

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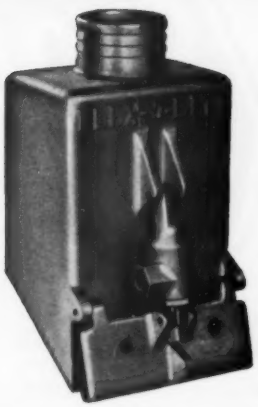

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Specific annual service charges are also dependent on whether and how

struction of sewage works with an annual subsidy of 2% of the con-

sewage works bonds would accomplish this, but further stimulation is

The Case for Federal Aid For Sewage Works

A consulting engineer calls for a reappraisal of local, state, and national policies to remove inequities in present financing and accelerate the cleanup of river pollution

By SAMUEL I. ZACK
Chief of Sanitary Division
Gannett Fleming Corddry & Carpenter Inc.
Harrisburg, Pa.

SINCE the close of World War II, various local governments have been building and rebuilding sewage-treatment plants at a commendable rate, enough so that today the equipment situation still remains tight. Nevertheless, pollution of rivers, lakes, ocean fronts, and underground waters is increasing faster than construction programs can correct it. The problem is no longer local, but has become national. Clean water in our rivers and lakes, or even in wells, is getting scarce.

Fast-growing, spread-out suburban communities, smaller municipalities, and older cities with difficult construction conditions find financing of sewage-collection and treatment works a burden. The tax dollar is certainly not unlimited, and municipalities find innumerable places that they feel deserve attention ahead of a sewage project.

Other Financial Demands

The demand for funds to build schools is monumental, and no one denies its importance. Traffic problems have to be met to avoid congestion and to prevent accidents. The rebuilding of slum areas to minimize unhealthy conditions and disease, and the need for parks and playgrounds for the immediate use of young people all rank among top essentials. Faced with these demands, and the fact that state and federal aid are available for these requirements, it is not surprising that officials enter into a sewerage program with reluctance. Furthermore, they do not like to spend for the benefit of downstream communities when the needs of their own people remain unmet, although less reluctance is evident to correct pollution which causes a local nuisance.

Nevertheless, for the sake of the entire nation, the job must be done. What is needed is a mass cleanup program, on a nationwide basis, with substantial federal backing and financial aid preferably with state participation in some measure.

To say that the full responsibility and expense to provide a nation with clean streams lies with each municipality individually and separately is like saying that each municipality shall finance and build that portion of an intra- or interstate express highway passing through its boundaries. A pollution clean-up program calls for adoption of the philosophy that:

1. requires filth to be kept out of subsurface and surface waters; to be effective, and in harmony with demands of present-day civilization, this major cleanup should be accomplished within a decade.
2. realistically acknowledges that piecemeal corrective work by individual communities or areas has been too ineffective, and too slow.
3. recognizes that the damage caused by pollution, and the benefits of cleanup are far-reaching, beyond the boundaries of any individual community.
4. advocates sharing of responsibility and financial burden in some measure by those who cause pollution and those who benefit by cleanup, to make the cleanup effective.

This follows closely the philosophy used in financing interstate highways. Traffic originates in the individual community, yet the federal government will assume more than two-thirds of the cost. In the new highway program recently passed by Congress, federal aid amounts to 90%! The streams may be called the express highways of sewage and industrial waste disposal.

Present tax laws in most states limit the amount of obligation or tax-supported bonds that can be issued by municipalities. In Pennsylvania, municipalities can establish "authorities" and issue revenue bonds secured by rentals or sewer-service charges paid by users of the project. However, financial houses demand higher rates of interest for these bonds when the actual faith and credit of the municipality is not involved.

Rates charged are high, running about $60 to $75 per dwelling unit per year as a maximum considered within the range of reasonable risk by investment bankers. The revenue must provide for operation, maintenance, repairs, and a coverage of at least 20% over debt service for the municipality with good credit rating, and 50% or more when credit ratings are not good.

Under our present system, little cities, least able to pay, face the largest price tags for their sewerage works depending on the extent of lateral, trunk, and intercepting sewers, pumping stations, and degree of treatment that have to be provided. Annual service charges to finance new construction entirely through revenue from users will run as indicated in the table immediately below:

Users	Population	Per dwelling
Large city with sewers	100,000 and over	$ 8 to $15
Medium city with sewers	10,000-100,000	$15 to $25
Small cities with sewers	1,000- 10,000	$30 to $50
Small cities without sewers	1,000- 10,000	$40 to $75

for lasting quality

Specific annual service charges are also dependent on whether and how much properties are assessed for sewer construction, and also how much they are charged for a sewer connection where lateral sewers have to be built. The small city generally has to pay a higher rate of interest than the large.

Assuming that the mass pollution clean-up program has the same value per person, it becomes obvious that the man in the little city has to pay a disproportionate share under the present arrangement.

Pennsylvania has stimulated construction of sewage works with an annual subsidy of 2% of the construction costs. This has not only made the bonds more salable, especially in marginal cases, but also has resulted in fractionally lower interest rates. The subsidy puts into practice the philosophy of spreading the responsibility for this state-wide improvement program.

By enhancing the credit of municipalities to the extent of being as good as the best ratings, a reduction of as much as 1% in interest could be accomplished in some cases. The pledging of state or federal credit to sewage works bonds would accomplish this, but further stimulation is needed for a fully effective program. This can be provided by the federal government in one or more of the following ways:

- **An annual subsidy to match state subsidy.**
- **Grant of funds to match grants or subsidies by states to municipalities.**
- **Grant of funds irrespective of state grants or subsidies.**
- **An annual subsidy irrespective of state subsidies.**

A reasonable split of capital costs to be considered might be 50% by the municipality and 50% by the federal government alone; or 25% by the federal government and 25% by the state. Industries discharging wastes to a municipal sewage project would benefit by lower costs resulting from state and federal participation.

The "Why me?" or "Is this for the fish or the people?" or "What is Blank City above us or below us doing?" would tend to disappear with this approach to the problem. All the nation would be helping to solve a problem that affects all the people. Today we have to finance the problem piecemeal, with heavy penalties placed on much of our population solely because of where they live.

The average American family will do its part in such a mass clean-up program if properly supported, but will continue to drag its feet as long as it is singled out to pay on such an unbalanced basis.

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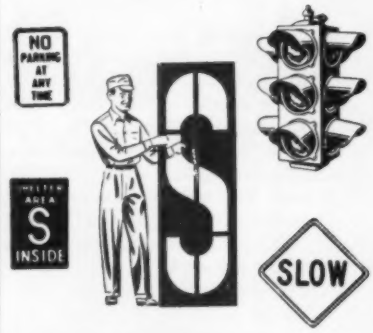

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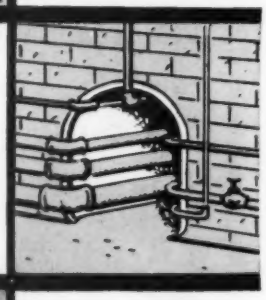

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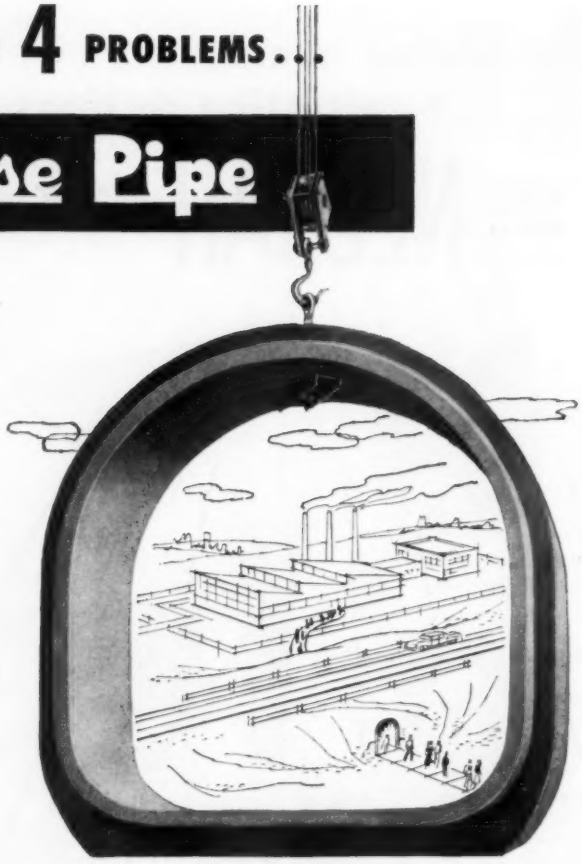

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Fluoridation Presents No Toxic Threat

By DR. HAROLD C. HODGE
Professor of Pharmacology and Toxicology
School of Medicine and Dentistry
University of Rochester
Rochester, N. Y.

Studies show neither acute nor chronic after effects from the use of fluorides in water as a dental health measure

TODAY the evidence is clear and unchallenged that the presence of the fluoride ion in drinking water at a concentration of about 1 ppm positively reduces dental problems. Carefully documented and controlled studies show conclusively that persons who have drunk water containing the fluoride ion as children can expect from 50% to 65% fewer DMF (decayed, missing, and filled) teeth when compared with other persons drinking water without fluoride.

The benefits are well documented; unfortunately, a substantial number of people still fear that the fluoride ion will produce harmful effects on the body. Fluorine is a highly active chemical and often has been used as the base for certain effective poisons. The term, "poison," understandably inspires fear in most people; and when this is connected with young children, the resulting opposition is easily understood.

For this reason, we who have made toxicology our special field of study have a certain obligation to the general public. We should report whether these fears are in any way justified, based on the facts as we see them in the impersonal light of scientific studies. Let me list a few rather pertinent conclusions that a study of fluoride toxicology shows.

● ***Fluorides, as applied to water for dental health measures can in no way be considered a poison.***

The term, poison, of course, is a relative one. Essentially it means "too much." Salt is a poison if taken in excessive quantities. Oxygen, necessary to human life, is toxic in high concentrations.

● ***Fluoridation in a public water supply cannot possibly reach a toxic level.***

With the equipment available, it would be physically impossible to add enough fluoride to the water to make it an active poison.

● ***Fluoridation should not be considered, medically, as "shotgun therapy."***

Many are unduly concerned about this. They feel that the idea of placing 1 ppm of fluoride in the water violates the principle of individual prescriptions based on personalized service.

Fluoridation is analogous to chlorination. The first creates conditions that reduce disorders of the teeth. The second produces conditions that reduce disorders in the body, chiefly the intestinal tract. Fluoridation produces conditions that reduce dental decay to an extent that dental practitioners will be able to care more effectively for the needs of each individual patient.

● ***Hardness in the water supply has no bearing on the effectiveness or toxicity of fluorides in water.***

Some investigators have mistakenly concluded that the "softer" the water, the more danger from fluoride toxicity. The record refutes this conclusively. For example, in Colorado Springs, the total hardness in the water is low enough to meet yesteryear's standards for distilled water, yet it contains approximately 2½ ppm of fluoride. Some midwest waters have hardness counts of 200 to 300 ppm. Yet in both cases the rate of tooth decay is related directly to the fluoride concentration in the water. Our searches have uncovered no evidence that fluoride toxicity has any relation to water hardness.

● ***The concentration of fluoride in water does not vary from the time that it leaves the city's plant until it passes through the household tap.***

Many have feared that the concentration of fluoride will change after the water leaves the central treatment plant. The Newburgh, N. Y., water supply, used as a controlled test, was sampled many times a month throughout the city. Investigators selected 10 or 12 sampling points and results showed that the concentration of fluoride varied by no more than 0.1 of a ppm.

● ***Variations in the intake of water containing 1 ppm of fluoride produce no harmful effects on the body.***

This has been a troublesome point. It is true that some people may drink only a glassful or two of water a day, and others may drink as much as a half-gallon (or eight glasses). However, the record shows rather clearly that these differences are not reflected on the body itself. To say it another way —even the larger amounts are well within the limits of safety, even with regard to disfiguring mottling of the enamel. The lack of evidence of systemic effects of fluorides in those large population groups which have been drinking water containing fluorides (at 1 ppm) throughout their lives constitutes one of the strongest guarantees of safety.

● ***Fluoridation produces no evidence of cummulative toxic danger.***

Many remember tragic cases of cumulative poisoning caused by lead, radium, and other products, and thus, suspect fluoride.

The factors of safety against the toxic effects of fluoride are well documented. The textbook, "Fluoridation as a Public Health Measure," published by the American Association for the Advancement of Science, carries a table on page 80 that shows these factors of safety.

Additional clinical evidence of the safety of water fluoridation may be

gained from the study of health of residents of Bartlett, Texas. The water supply in this community, until recently, contained eight times the recommended concentration of fluoride. Some of the life-long residents here who drank water containing this high concentration of fluoride, developed minor and obscure changes in the bones that could be detected only by X-ray examination. However, these changes involved no impairment of their function. The health of these people was normal and differed in no important way from the health of a group of people living in nearby Cameron, where the water was low in fluoride.

● ***Evidence is accumulating that shows fluoridation produces continuing benefits to adults and children.***

The rather selfish argument often arises: why should all people have to drink water that produces benefits only to a fraction of the population, namely, the children? Obviously, the protection of children's teeth means preservation when they are adults, and thus all people benefit.

Also, Dr. Frederick S. McKay, has given us data on his patients in Colorado Springs, aged 20 to 44, who have drunk fluoridated water (2½ ppm) all their lives. Dr. Russell and Dr. Elvove have extended the study to include hundreds of residents of Colorado Spring and Boulder. The extension of benefits into the fourth decade at least is evident.

Specifically, the countrywide caries experience of those 20 to 24 years of age is about 15 DMF teeth per person; in Colorado Springs, the caries of this group average only 5 DMF. For those 40 to 44 years of age, the countrywide caries experience averages about 22 DMF teeth per person; the Colorado Springs group is about 10.

● ***Fluoridation poses no dangers to pregnant women, or nursing children.***

The controlled test in Newburgh, N. Y., with water containing fluoride, and Kingston having water without fluoride, was examined in detail by the New York Department of Health. Dr. David B. Ast, Director of Dental Health, reported on a comparison of maternal death rates, still birth rates, neonatal death rates, and infant death rates for the two cities annually from 1939 to 1952. Although variations occur from year to year because of the small number of such deaths in any one year, nevertheless there were no significant differences over the entire period between the two cities in the various death rates.

● ***No significant change in the tooth enamel itself can be observed.***

Some have feared that the fluorides would make the tooth enamel hard and therefore more difficult to correct. Here Dr. Ast again reports that no dentist in Newburgh that he has interviewed has found this true.

In some people, the teeth may be subject to a slight fluorosis; however, it will be detected only by an experienced dentist after a detailed examination.

The fear of mottled teeth developing in children is often expressed. Fluoridation at 1 ppm does not produce the unesthetic spotted, brown-to-black barred and grooved teeth from which dental fluorosis gets its name "mottled enamel." Disfigured teeth are found only when water supplies contain more than 2 ppm of fluoride (or when excessive amounts of fluoride are given).

In excess, fluoride specifically hampers the cells forming tooth enamel before the tooth erupts. Only at this

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stage can fluoride interfere with enamel formation. No other effect of fluoride is known in human's drinking water with 2 ppm fluoride, that is, the enamel effect is the most delicate indication of fluoride.

In the absence of fluoride (water with essentially no fluoride) and also water with up to a little over 1 ppm fluoride) the enamel forming cells frequently suffer spontaneous, "natural" hindrances that show up when the tooth erupts as tiny white spots or once in a while as a tiny brown spot. The frequency of finding these spots has been measured by Dr. H. Trendley Dean, retired director of the NIDR. There are almost exactly the same number of white spots (one in ten to one in five children have them) regardless of the amount of fluoride in the water within the limits of essentially 0 to 1 ppm fluoride. Since these white spots (really tiny developmental imperfections occur from many causes only some of which are known: fever, vitamin deficiency, injury) and since there are significant increases in their numbers and sizes only when the water contains 2 ppm or more fluoride, these spots probably should not be classed in the same description of dental fluorosis as the brown and black, stained or pitted surfaces commonly described as "mottled enamel." Some of the children drinking fluoridated water will have tiny white spots on their teeth, but these will not be significantly different in number or appearance from the tiny white spots on the teeth of children who drink water containing no fluoride.

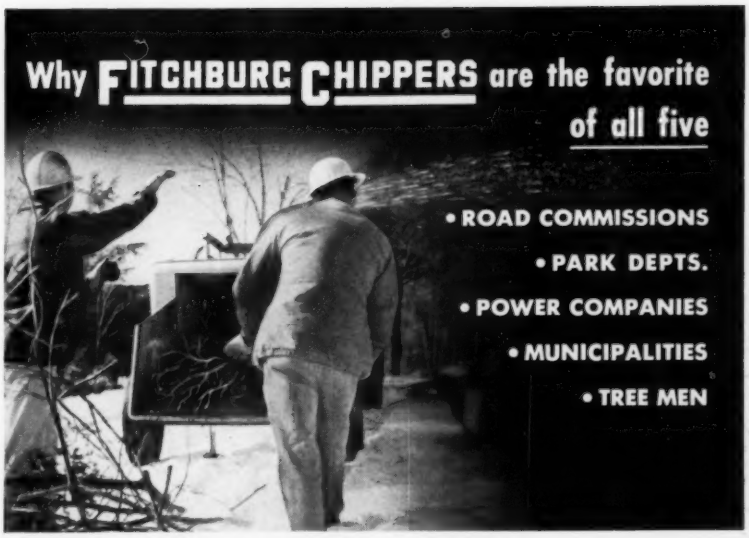
● ***Artificial fluoridation is not different in health respects from natural fluoridation.***

The fluoride ion is the important factor in this dental health measure.

In contrast, the improvement in the teeth among children having the advantage of fluoride-treated water is so striking that it can be detected by a casual examination of the mouth.

No doubt, much additional information remains to be gathered. The mechanism, for example, by which fluoride produces its effect is not clearly understood. At present, however, the addition of fluorides to the drinking water of a municipality is the soundest approach known today.

● ***When all the available scientific evidence is considered, it is our opinion that the health hazards feared by some people do not justify postponing water fluoridation.***



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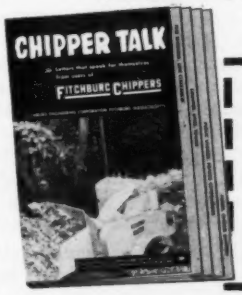

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Zoning and Planning Notes

Edited by NORMAN WILLIAMS, Jr.

Permitted Uses in Commercial and Industrial Districts

PENNSYLVANIA. *Novello* v. *Zoning Board of Adjustment of Philadelphia*, 121 Atlantic (2d) 91 (Supreme Court, March 13, 1956).

NEW YORK. *O'Brien Transfer & Storage Co.* v. *Incorporated Village of Great Neck*, 150 New York Supplement (2d) 211 (Supreme (lower) Court, January 25, 1956).

NEW YORK. *Plander* v. *Koehler*, 150 New York Supplement (2d) 879 (Supreme (lower) Court, February 9, 1956).

In the Philadelphia case, the zoning ordinance set forth a list of uses permitted as of right in an A Commercial District, and also a list of additional uses permitted there subject to a special permit from the Board of Adjustment. The latter included garages, auto repair shops, and filling stations, plus customary accessory uses, and uses "of the same general character" as the other listed special-permit uses. In this case, the Board of Adjustment approved an auto laundry fronting on Broad Street, subject to specified conditions; and the Court held that car washing was permitted, as an accessary use *and* as a use of the same general character as a garage. The use of special machinery to wash the cars was treated as a mere "difference in the degree of thoroughness with which the cars are washed, not as a difference in use as prescribed in the Ordinance."

This litigation points up again the importance of specifically allocating new types of establishments to the appropriate place in the use lists.

In the *Great Neck* case, the local zoning regulations for a business district permitted manufacturing and similar operations when incidental to a retail business on the premises, subject to specified further conditions. In this case the Court held that this did not permit a moving and storage business.

In the second New York case, the Islip zoning ordinance listed a series of uses prohibited in industrial districts, and also others which would be permitted with a special permit. Among the latter, the ordinance included:

> "Any industrial process emitting dust, odor, gas, fumes, noise or vibration comparable in character to or in aggregate amount equally that of any use specified above in this subdivision."

The Board of Appeals denied a special permit for a cement-block manufacturing establishment, on the grounds that this would result in increased traffic and that public welfare would not be served—but with no reference to the emission of nuisances. The Court held that in this case the permit should be granted.

> "We are faced therefore, with a decision based on considerations not to be found within the four corners of the ordinance. The first of these we may dispose of as completely without weight when we consider that it has been consistently held that increased traffic burdens or hazards are matters which constitute police problems and are not for the zoning authorities."

The last sentence appears to be an aberration. In fact, considerations of relative traffic-generation are often, and rightly, given great weight both in drafting zoning laws and in the courts.

Operation of Dam

CALIFORNIA. *California Oregon Power Company* v. *Superior Court*, 291 Pacific (2d) 455 (Supreme Court, December 29, 1955).

Since about 1917 the California Oregon Power Company had been maintaining two dams on the Klamath River in northern California. It was alleged in the litigation that, because of the way in which these dams were operated, the water level fluctuated so much that large numbers of fish died when the water level was lowered, and also that the release of large amounts of water had resulted in drowning a number of people. The Federal Power Commission took jurisdiction over the matter for several years of proceedings, without much result. The State of California brought an action in Superior Court to abate the operation of the dams as a nuisance, and the Power Company countered by bringing this action to prevent the Superior Court from hearing the former action. The Court here held that the Superior Court had jurisdiction to hear the former action.

Non-Conforming Use—Purchase of Tract For Quarrying

NEW YORK. *New York Trap Rock Corporation* v. *Town of Clarkstown*, 149 New York Supplement (2d) 290 (Appellate Division, March 5, 1956).

In the 1920's a trap rock company acquired a large tract (with about 240 acres) along one side of a highway and began quarrying operations; and a few months thereafter the company also purchased a smaller tract (with about 47 acres) on the opposite side of the highway. Subsequently, a Zoning ordinance for the town placed the smaller tract in a residential district. The terrain on that tract was similar to other land developed for residential purposes nearby. The trap rock company challenged the constitutionality of the ordinance as applied, but the Court upheld the restriction.

In the opinion, the Court held that the smaller tract was suitable for residential purposes. It was also noted that the company had not made any substantial investment preparatory to quarrying on this tract, nor any use of the land for that purpose. The Court held that, if esthetic considerations were taken into account in the formation of the zoning plan, this would not invalidate the ordinance.

Churches in Residence Districts

OHIO. *Young Israel Organization of Cleveland* v. *Dworkin*, 133 North Eastern (2d) 174 (Court of Appeals, March 14, 1956).

TEXAS. *Congregation Committee, North Fort Worth Congregation, Jehovah's Witnesses* v. *City Council of Haltom City*, 287 South Western (2d) 700 (Court of Appeals, February 24, 1956).

In the Ohio case, a nonprofit organization proposed to use a tract of land in South Euclid for an orthodox synagogue. A special-permit provision of the ordinance allowed the Zoning and Planning Commission to authorize, on undeveloped land, any use deemed to be in general keeping with the other uses permitted there; and the Commission approved this application. It appeared that the Orthodox faith forbade use of any form of transportation on the Sabbath and holidays, except for walking to a place for religious observance; and it was therefore argued that:

> "Because they adhere to this faith, their places of worship must be within walking distance of their homes. The site on which realtor desires to build is within walking distance of part of the members of the realtor organization."

The Court held that a refusal to permit a church in this stiuation was unconstitutional.

In the opinion, the Court quoted from standard texts on zoning to the effect that in most localities churches are expressly permitted in most residence districts. (In fact, there is a considerable split on this question, in zoning practice as well as in the courts.) It was pointed out that here the residential zoning regulations permitted water towers and suburban railway stations; and it was held to be absurd to forbid churches while permitting such structures. The opinion also noted that the ground across the street, in another municipality, was being developed for multiple dwellings and institutional purposes.

The Texas case involved an application by a group of Jehovah's Witnesses to erect a building on a small lot. The zoning ordinance permitted churches under specified conditions, or by an exception, which was what was involved here. The building was practically completed when work was ordered to be stopped, because the building permit authorized only a "frame house or tile and brick." In approving completion of the church, the Court held that a city cannot legally exclude a church from a residential district, and further that, because of this, a city cannot accomplish the same result by imposing onerous conditions. The Court held that the small size of the lot (60 x 100 feet), the lack of sufficient parking accommodations, the increase in traffic, and mere inconvenience to neighbors were not sufficient reasons to exclude the church. In this case it appeared that the City Council was acting as the Zoning Board of Adjustment.

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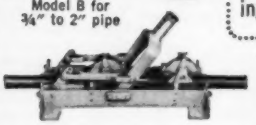

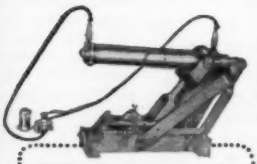

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Zoning Briefs

California

CLUBHOUSE AND SWIMMING POOL PERMITTED. Granting of permit for operation of clubhouse and swimming pool in residence area upheld by Court. Ordinance permitted "semi-commercial" use and Court held that there was ample evidence to show qualification as such. Schumm v. Board of Supervisors, 295 P. 2d 934. (District Court of Appeal, 3rd Dist., Apr. 18, 1956.)

STATE CONTROLS REGULATION OF HORSE RACING. Local authorities barred race track for quarter horses as threat to moral welfare of community. Court held that because State had preempted regulation of horse racing, and because State had seen no threat to moral welfare and had issued permit, local authorities could not bar track on that ground. Desert Turf Club v. Board of Supervisors, 296 P. 2d 882. (District Court of Appeal, 4th Dist., May 11, 1956.)

BEER AND WINE PERMITTED: STRONG DRINK BARRED. Operator of establishment with permit to sell beer and wines, sought permit to sell distilled liquor, claiming that it would be extension of present nonconforming use. Court saw sharp distinction between selling liquors and selling beer and wine, and upheld local authorities in action denying permit. Town Council v. State Board of Equalization, 296 P. 2nd 909. (District Court of Appeal, 1st Dist., Div. 1, May 8, 1956.)

Connecticut

TRAFFIC HAZARD VALID BAR TO GAS STATION. Application for special exception to permit sale of gas in industrial zone denied on ground that highway was too narrow (two 10ft. lanes with 10ft. shoulders) and that proposed site was concealed by curve in road. Court upheld denial by local authorities. Silver Lane Pickle Co. v. Zoning Board of Appeals, 122 A. 2d 218. (Supreme Court of Errors and Appeals, Apr. 10, 1956.)

PARKING SPACE TO BE USED BY DOCTORS AND DENTISTS APPROVED. Court upheld granting of variance permitting use of yard owned by American Legion as parking space. Surrounding area housed offices of 86 physicians and dentists, and Legion planned to rent parking space to doctors and dentists for themselves and patients by day, and to use space for its own members in evenings. Devaney v. Board of Zoning Appeals, 122 A. 2d 303. (Supreme Court of Errors and Appeals, Apr. 18, 1956).

Kansas

INSURANCE OFFICE BUILDING IN SUBURBAN AREA PERMITTED. Special permit granted for erection of one-story insurance office building in residential area on main highway near cloverleaf intersection. Overruling argument that traffic congestion would be increased, Court held that zoning change was reasonable and sustained local and county boards in decision to grant permit for building. Duggins v. Board of County Commissioners, 293 P.2d 258 (Supreme Court, Jan. 28, 1956).

Minnesota

NO REFERENDUM ALLOWED WHEN ONLY AMENDMENT IS IN QUESTION. Construction of factory on 105 acre tract held up because petition for referendum on amendment to zoning ordinance changing area from "open development" to "heavy industrial" had been filed. Local authorities claim that they could not act while referendum was pending as adverse vote might invalidate amendment. Court ruled that referendum could be held only when comprehensive zoning ordinance was involved and not when only an amendment was questioned. Minneapolis-Honeywell Regulator Co. v. Nadasdy, 76 N.W. 2d 670. (Supreme Court, Apr. 20, 1956.)

Missouri

FUNERAL ESTABLISHMENT BARRED IN RESIDENCE AREA. Permit issued by local authorities for setting up of funeral establishment in residential zone adjudicated adversely when carried to Court by neighboring property owners. Veal v. City of St. Louis, 289 S.W. 2d 7. (Supreme Court, Div. 1, Mar. 12. Motion for rehearing or to transfer to Court en banc denied, Apr. 9, 1956.)

Nebraska

TRIANGULAR LOT CAUSES ZONING COMPLICATIONS. In case concerning triangular lot with curved side on one of three bordering streets, Court held that there was no requirement in the ordinance that "front of house shall face the principal street frontage" and directed local officials to issue certificate of occupancy. Petersen v. Vasak, 76 N.W. 2d 420. (Supreme Court, Apr. 20, 1956.)

New Jersey

LICENSING ORDINANCE COVERS ONLY COMMERCIAL OPERATION. Attempt to bar trailer parked on land leased by owner of trailer under provisions of ordinance licensing trailer camps ruled out by Court which held that "the mere placing of one or 20 trailers upon a land area does not constitute a trailer park or camp site" unless owner of land operates a regular camp business. Morris v. Township of Elk, 122 A. 2d 15. (Superior Court, Law Division, Apr. 7, 1956.)

STORAGE GARAGE NO DIFFERENT FROM OTHER GARAGES. Ordinance passed 1955 forbade storage garage in area in which private and public garages were permitted. Court held that that distinction made by ordinance bore no relation to public health, safety, morals or welfare and so was invalid. Roselle v. Wright, 122 A. 2d 506. (Supreme Court, Apr. 30, 1956.)

North Carolina

ACCEPTANCE OF CONDITIONS WAIVED RIGHT TO CONTEST ORDINANCE. Permission sought to remodel small building on grounds of Roman Catholic school operated as nonconforming use in residence zone. When property was bought, Bishop accepted special use permit, prohibiting structural changes in buildings. Court held that by accepting special use permit with knowledge of its restrictions, Bishop had waived right to contest validity of ordinance. Denial of permit for alterations upheld. Convent of Sisters, Ect. v. City of Winston-Salem, 90 S.E.2d 879 (Supreme Court, Jan. 13, 1956).

MAP DETERMINING FACTOR IN INTERPRETING ORDINANCE. Zoning ordinance provided that when one or more corners of street intersection had been rezoned, owners of other corner lots were entitled upon application to similar rezoning. Lots in question were at intersection from which one street never had been opened on east side, although map adopted as part of zoning ordinance showed street and lot lines. Court held that map prevailed and that property owner was entitled to have his lot reclassified. Bryan v. City of Sanford, 92 S.E. 2d 420. (Supreme Court, May 2, 1956.)

Pennsylvania

ADDITION IN REAR ALLOWED AS EXTENSION OF NON-CONFORMING USE. Owner of service station operating as non-conforming use in single-family residence district applied for variance to construct one-room addition in rear of building in space between building and retaining wall. Variance refused. Court held that a non-conforming use cannot be limited to the precise magnitude of original operation, and after pointing out that construction of building would lessen danger to children by eliminating unguarded retaining wall, and that new structure would be invisible from street, directed that variance be granted. In Re Mack's Appeal, 122 A.2d 48. (Supreme Court, April 16, 1956).

DRIVE-IN THEATRE STRADDLES TOWN LINE. Variance to permit use of land in residential zone for drive-in theatre denied by local board. Theatre straddled line between Falls Township and Lower Makefield. That part of drive-in located in Falls Township in business zone but part of area to be used by parked cars in residence zone in Lower Makefield. Court held that as area in dispute was landlocked with no access except through area in Falls Township, there was no other feasible or profitable use available to owner, and that barring uses as theatre would violate due process clause of Fourteenth Amendment. Lower court's decision upholding denial reversed. Baranoff v. Zoning Board of Adjustment, 122 A.2d 65. (Supreme Court, April 16, 1956).

Rhode Island

OPERATING LAUNDRY WITHOUT PERMIT ENDS NON-CONFORMING USE. Zoning Board permitted continuance of self service laundry in residence zone as extension of non-conforming use. At time area was zoned, 1923, building was used as grocery store and operation as laundry began in 1947 without permit from Board. Held that as use as laundry never had been authorized, its continuance would not be a legitimate extension of a non-conforming use. Board reversed. Paolella v. Zoning Board of Review, 122 A.2d 157. (Supreme Court, April 18 as of Jan. 17, 1956).

NO REASONS GIVEN: DECISION AGAINST BILLBOARDS QUASHED. Newport City Council denied permission to erect billboards in commercial district. Decision reserved after hearing and when made later was accompanied by no statement of reasons for decision. Court held such action arbitrary and quashed decision. Newport Poster Advertising Co. v. City Council, 122 A.2d 170 (Supreme Court, April 17 as of Jan. 17, 1956).

Texas

POWER TO AMEND COMPREHENSIVE ZONING ORDINANCE SHOULD BE "SPARINGLY EXERCISED" Amendment to comprehensive zoning ordinance changing residence zone to commercial zone challenged. Lower Court entered summary judgment in favor of city. Supreme Court reversed decision pointing out that the power to make changes in comprehensive zoning ordinance should be "sparingly exercised" and stating that lower court's decision had been based on conclusions rather than on facts. Bliss v. City of Fort Worth, 288 S. W. 2d 558. (Court of Civil Appeals, Feb. 24, 1956, Rehearing Denied, Mar 30, 1956).

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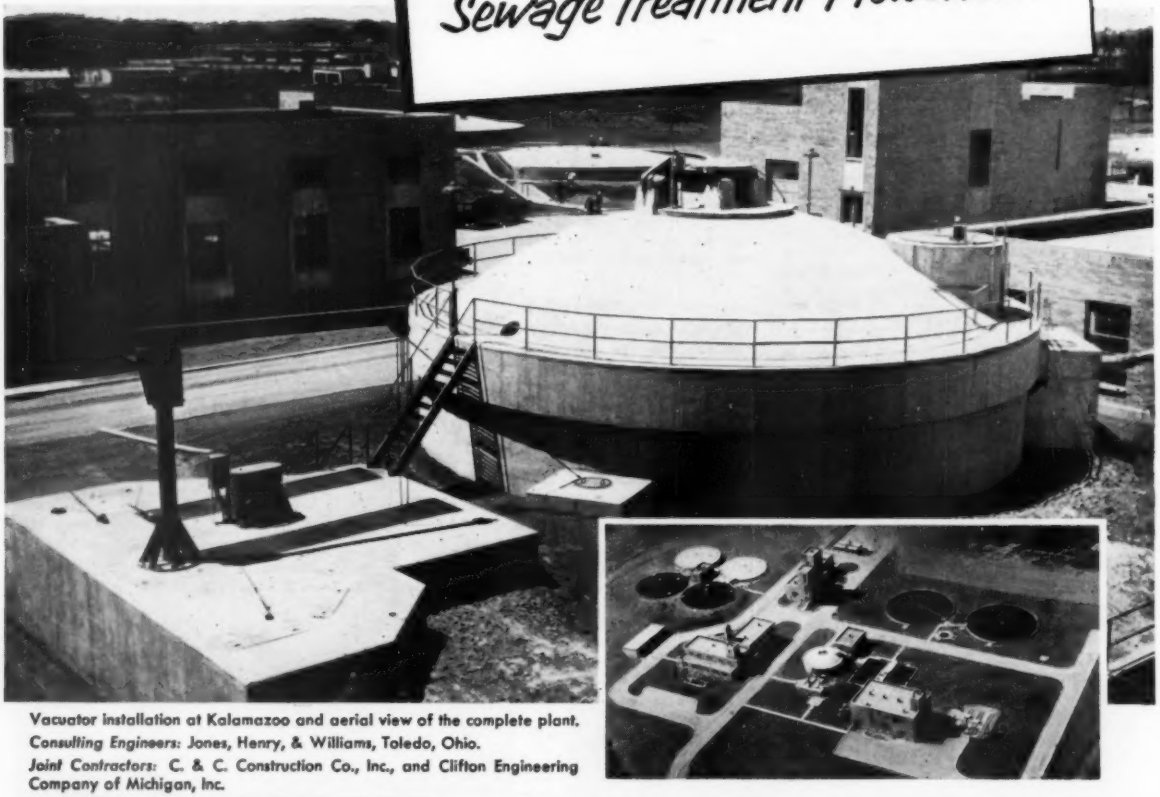

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Charles S. Rhyne, General Counsel

Bonds—Authorized for Water System Repairs Even Though Rejected in Referendum

Under statute authorizing municipalities to acquire or operate public utilities from proceeds of municipal bonds and to acquire water facilities beyond their corporate limits if within 30 miles, city could contract for and issue revenue bonds for construction of addition to water system consisting of a pipeline to lake 26 miles away, even though question had been submitted to referendum and rejected. *Denning* v. *City of Green Bay*, 72 N.W.2d 730 (Wisc., Nov. 8, 1955).

Bonds—Statute of Limitations Does Not Apply in Suit After Maturity Date

In an action brought by bondholders after maturity date of foreclose liens for nonpayment of refunding street improvement bonds, held, statute of limitations did not apply and action brought within three years of maturity date of bonds was not barred. *Duke* v. *Town of Okemah*, 289 P.2d 377 (Okla., Sept. 27, 1955).

Building Code Amendment Valid Despite Irregularities

In proceeding to review town council's action in enacting an ordinance amending the building ordinance of the town, held, where the proposal to amend was duly advertised and public hearing was held and petitioners and others were present or represented, fact that place of meeting was transferred and a clarifying phrase added prior to final enactment of proposal would not invalidate the amendment. *Community Home Builders* v. *Town Council of North Kingstown*, 117 A.2d 344 (R. I., Nov. 4, 1955).

City Employees—Commission for Taking Nonresidents Testimony Valid But Employees Expenses Must Be Paid

It was a proper exercise of discretion to grant an open commission for taking testimony of nonresident witness for use in disciplinary proceedings against employees of City Tax Commission, but order should provide for reimbursement of respondent employees by city for out-of-pocket expenses entailed other than counsels' fees. *Corporation Counsel of City of New York* v. *Smith*, 145 N.Y.S.2d 563 (Sup.Ct.App.Dov. 1st. Dept., Nov. 7, 1955).

City Property Acquired Under Special Statute for Park and Hospital Use Cannot Be Sold

Taxpayer could enjoin sale of surplus property acquired by city under statute providing for acquisition of land for hospital and park purposes only. *Aldrich* v. *City of New York*, 145 N.Y.S.2d 732 (Sup. Ct. Sp. Term Queens Cty., Oct. 25, 1955).

Contracts—Illegal Where Mayor Employee of Seller

A road grader purchase contract, resulting from influence exerted by the mayor of the purchasing municipality while occupying the dual position of mayor and employee of the seller of the equipment, was illegal and void. *Pressey* v. *Township of Hillsborough*, 117 A.2d 646 (N. J. Super. App. Div., Oct. 28, 1955).

Disannexation of School District from Town—Injunction Proper Remedy

Where School Board acted without potential jurisdiction in disannexing portion of municipal school district from incorporated town, which had taken exclusive control of all public free schools within its boundaries, proper remedy for municipality was in injunction and not quo warranto. *Town of Sunnyvale* v. *Dallas County Board of School Trustees*, 283 S.W.2d 296 (Tex. Civ. App., Sept. 30, 1955).

Elections—Mistake Made in Good Faith Does Not Invalidate All Nominations

Where nominating petitioners in single petition, in good faith, made nominations for each of 12 offices on council of Community of St. Matthews but the ordinance changing the number from six to 12 had never been published and six candidates voluntarily withdrew, the nominations as to the remaining six were valid. *Queenan* v. *Mimms*, 283 S.W.2d 380 (Ky., Oct. 21, 1955).

Electric Company No Right To Furnish Power To Annexed Area

Where rural electric company having no permanent electrical installations in area before its annexation to city, procured applications from homeowners therein for permanent service after annexation and under statute company had no power to furnish electricity to area within corporate limits, it was not entitled to injunction preventing city's interference with establishment of permanent electrical service. *City of Moultrie* v. *Colquitt County Rural Electric Co.*, 89 S.E.2d 657 (Ga., Sept. 16, 1955).

Fire Department—Prohibition of Outside Employment Reasonable

Ordinance of City of Milwaukee providing that no member of city fire department shall engage in any other employment or receive compensation for performance of any other service unless incapacitated and unable to perform his regular duties as member of department is a reasonable and valid regulation in the maintenance of an efficient fire department. *Huhnke* v. *Wischer*, 72 N.W.2d 915 (Wisc. Nov. 8, 1955).

Garbage Truck Injures Worker—No Recovery

In an action for injury sustained while working as helper on garbage collection truck, held failure to give written notice of injuries required by city charter and fact that truck was used in performance of governmental function precluded recovery. *Venters* v. *City of Ennis*, 283 S.W.2d 408 (Tex. Civ. App., Oct. 27, 1955).

Gas Distribution System Acquisition Not Authorized By Statute

Statute relating to the purchase or erection of a natural gasworks did not authorize acquisition of gas distribution system by the city, and ordinance setting out a plan for acquisition or construction of such a system did not comply with statutory requirements. *Citizens Utilities Company* v. *City of Rock Ford*, 289, P.2d 165 (Colo., Oct. 24, 1955).

Gambling—Destruction of Devices Valid

In proceeding against a gambling device in Dallas, under a gaming statute, to destroy the device, held, fact that gambling was carried on without knowledge or consent of owner, or against express instructions of owner to agent, is not a legal defense to action against the machine. *Williams* v. *States*, 283 S.W.2d 44 (Tex. Civ. App. Oct. 27, 1955).

Parks—Loitering After Midnight Prohibition Valid

City of New York Park Department rule prohibiting loitering or remaining in park after midnight was not ultra vires and invalid, but a reasonable measure of local control affecting civil liberties only in an allowable and minor degree. *People* v. *Zalon*, 145 N.Y.S.2d 269 (City Mag. Ct., N. Y. City, Oct. 17, 1955).

Parks—Dedicated Property Cannot Be Sold to Private Corporation

Where property has been dedicated by city to public use as a park and such use has been continuous for more than 40 years, city could not declare park abandoned and sell property to private corporation even though proceeds of sale were earmarked for development of other recreational areas *City Council of Augusta* v. *Newsome*, 89 S.E.2d 485 Ga., Oct. 13, 1955).

Police—Removal of Distressed Woman From Street and Transporting Her to Hospital a "Governmental Function"

Policeman engaged in removing a distressed woman from the streets and transporting her to the nearest hospital was engaged in a "governmental function," and the city was not liable for the policeman's performance in carrying out this task. *Lawson* v. *City of Campbell*, 129 N.E.2d 529 (Ohio App., Oct. 29, 1953).

Segregation—Separate But Equal Housing Facilities Upheld By District Court

In an action to compel the admission of Negroes to a white public housing project in the City of Savannah, held, that if, as it would be assumed without allegation to the contrary, the three public housing projects provided for Negroes were equal in kind to three provided for white people, Negroes who were denied admission to white projects were not being deprived of constitutional rights. *Heyward* v. *Public Housing Administration*, 135 F. Supp. 217 (D.C., S.D. Georgia, Oct. 21, 1955).

Traffic Signals Failure—City Not Liable Where Policeman Fails To Take Corrective Action

In a wrongful death action against city, although traffic officer had authority and perhaps upon discovering a defective signal to either direct traffic or temporarily cover signal, under statute he was not authorized to remedy the condition and his testimony should have been struck. Order for new trial affirmed. *Hoel* v. *City of Los Angeles*, 288 P.2d 989 (Cal. App., Oct. 17, 1955).

A Texas City Puts Punch into Utility Billing and Building

(Continued from page 131)

hours. This year the same job was done in 7 man- and machine-hours.

The record room of the tabulating section contains all punched card files for utility billing and the keypunch equipment. The clerical help needed to process the changes necessitated by customer service, routine meter exchanges, and a multitude of other changes in records have desk space in this room. The accounts receivable and meter location files require constant reference and are contained in tube files designed for standing use. A five-line telephone system with detachable headsets provides the clerks in this section with an easy method of communicating with contact personnel requesting information.

After six months, the building was evaluated to determine the functional efficiency of building design and work space layout. The results were interesting insofar as they show that there has been no relocation of equipment since the architect's final design was approved by fitting the layout templates to the work spaces. All planned electric and telephone connections have proved satisfactory. This is especially important since floor installations were made up of conduit runs only, rather than floor ducts, which results in a considerable savings in building funds.

We have often been asked about future growth since Corpus Christi is on the threshhold of its greatest expansion. If our plans prove as satisfactory as the original plans for the utility building, a population increase to a quarter of a million in ten years can be taken in stride. As those who work with tabulating equipment know, it thrives on volume. We feel capable through good planning of handling this increase in utility and tax work as well as our miscellaneous activities with our present equipment supplemented, and perhaps with some auxiliary machines and the improvements to be expected in such equipment.

We invite all interested organizations to visit us for service.

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PATIENT: 36 miles of twin 20" Cast Iron supply lines, Portsmouth, Virginia.

SYMPTOMS: Insufficient water in Portsmouth.

DIAGNOSIS: Low pipeline capacity caused by flow restricting tuberculation.

TREATMENT: The twin 20" mains were cleaned and cement lined in place without interruption of water supply service to Portsmouth. The Centriline Process of centrifugally applying cement mortar was used.

RESULTS: Each pipeline is now capable of permanently carrying twice as much water as prior to cleaning and lining.

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368 Airport Projects

TOTAL of 368 airport projects will receive $51,863,177 in federal aid airport funds for the next fiscal year beginning July 1. This allocation, to be made through the U. S. Department of Commerce, is part of a four-year program for airport construction and improvement. It is the largest Federal Aid airport program in history. Of these allocations, about 73% are for general aviation airports and smaller airline stops. They will receive 30% of the allocated funds.

Under the amendment of the Federal Aid Airport Act, adopted last year, $63,000,000 will be available annually for matching funds in each of the three years. The Commerce Department reports that programming of the full amount for 1957 has not been completed because communities in some of the states did not submit eligible requests sufficient to utilize all funds set aside for their states under the area-population formula. The unused funds will remain available for further programming in those states until the end of the fiscal year.

A complete list of the airports in the current program can be obtained from the Office of the Secretary, U. S. Department of Commerce, Washington, D. C.

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BASE FILL COMPACTION—This type of compaction demands equipment that will handle a wide variety of materials, give you the highest degree of compaction with the fewest passes. Buffalo-Springfield's revolutionary K-45 Kompactor is proving a real money-making answer for this type of work. It is self-propelled, relies on the "Interrupted Pressure Principle." All compaction effort is directed downward. Contractors testify they are meeting density requirements in one-fourth the time normally required with other compaction equipment.

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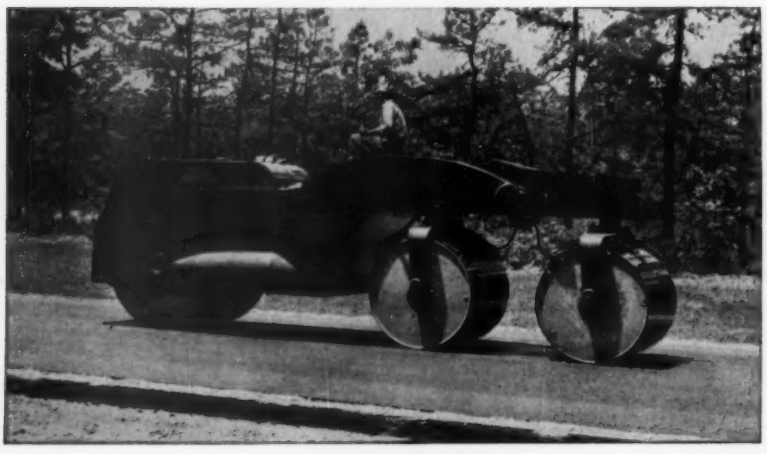
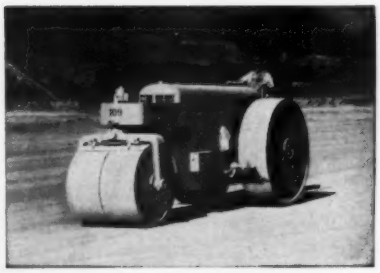
Buffalo-Springfield's thoroughly-proved 3-axle tandem "walking beam" roller provides up to 60% greater tonnage compacted per day in superhighway construction, airport and military establishment jobs where specifications are extra strict.

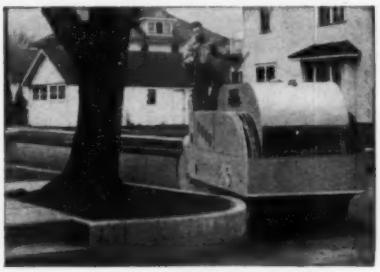
ASPHALT FINISHING—Two-axle Tandem Rollers are designed especially for all surface finishing jobs. Ranging from 5 to 16 tons, Buffalo-Springfield Tandems are used for heavy-duty highway and public works projects, and all types of finishing, maintenance and repair work. A wide selection of models for the biggest to the smallest jobs are designed for long-life and profitable operation.

THE BUFFALO-SPRINGFIELD KX-3 AXLE TANDEM





3-WHEEL ROLLERS



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3-5 TON PORTABLE TANDEM

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BUFFALO SPRINGFIELD

SPRINGFIELD, OHIO

Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

Donald V. Smith
Madison Heights, Mich.

William E. Blaisdell
Windsor, Vt.

Rudolph Weiss
Kerrville, Texas

Claude Rioux
Hampstead, Que.

David E. Firestone
Imlay City, Mich.

RICHARD F. CAHILL, a former student at the University of Maine, was appointed town manager of Northfield, Vt., succeeding Theodore M. Nelson.

Grand Junction, Colo., has appointed ROBERT E. CHEEVER, former mayor of Cheyenne, Wyo., to succeed Warren D. Toyne as city manager.

JOE N. CROWDER, city manager of Auburndale, Fla., was appointed city manager of Stuart, Fla., succeeding John M. Mullin, Jr.

The first city manager of Gunnison, Colo., is KESTER L. DOTTS, superintendent of utilities at Winner, S. D.

Carey, Ohio, has appointed GEORGE DUNN, from private business, to succeed J. R. Castner as city manager.

L. A. GRESSOM was appointed city manager of Carthage, Texas, succeeding J. L. Horner.

HORACE B. GULDEN, manager of Pottstown, Pa., was appointed city manager of Bloomfield, N. J.—their first city manager.

Whitehall Borough, Pa., has appointed CALTON HECKERMAN, JR., the borough engineer at Bedford, Pa., to succeed Robert H. McGregor as borough manager.

The first city manager of Truth or Consequences, N. M., is ROBERT B. LAURSEN, city engineer at Grants Pass, Ore.

C. F. MCDONALD was appointed first city manager of Clarkesville, Ga. He was a field director for the American Red Cross.

HUGH MCKINLEY, manager of Sutherlin, Ore., was appointed city manager of Grants Pass, Ore., succeeding John F. Porter.

The first city manager of Exeter, N. H., is ALLEN M. MARKS, manager of Pittsfield, Maine.

Gloucester, Mass., has appointed RICHARD W. MAYO, commanding general at Ft. Stewart, Ga., to succeed Dean C. Cushing as city manager.

A. J. MULVIHILL, former manager of Lebanon, Mo., was appointed city manager of Slater, Mo., succeeding Bruce W. Love.

Camp Hill, Pa., has appointed R. J. ROUNTREE, JR., manager of Altavista, Va., to succeed John H. Immel as borough manager.

ROGER W. STILWELL, assistant manager of Springfield, Ohio, was appointed city manager of Delaware, Ohio, succeeding Robert F. Mott.

Mt. Pleasant, Texas, has appointed A. E. TAYLOR, manager of Eastland, Texas, to succeed Robert H. Hayes, Jr., as manager.

The first city manager of Conway, N. H., is PERCIVAL H. WARDWELL.

ORIN F. NOLTING, *Executive Director*
International City Managers' Association

REPRESENTATIVE MUNICIPAL BOND ISSUES
June 26 to July 11, 1956

Date of Issue			*Purpose*	*Average Maturity (Years)*	*Net Interest Cost Per Cent*
6/26/56	Jackson Co., Ia.	$ 78,000	Hospital	11⅗	2.82
6/27/56	Green Springs, Ohio	15,000	Village Hall Improvement	8	3.237 (basis)
7/2/56	Joilet Ill.	800,000	Water and Sewer Revenue	28¼	3.438
7/2/56	Phoenix, Ore.	40,000	General Obligation Sewage Disposal	11½	3.914
7/3/56	Azusa City School District (Los Angeles Co., Calif.)	55,000	Building	9¾	3.5946
7/5/56	Mechanicville, N. Y.	52,000	Highway	13⅕	3.19 (basis)
7/5/56	Willowick, Ohio	124,000	Paving Improvement (Special Assessment)	6	3.67 (basis)
7/9/56	Clawson, Mich., School District	500,000	Building and Site	13⅖	3.999
7/9/56	Mountainside, N. J., School Dist.	409,000	School	10⅖	3.39
7/9/56	Park Hills, Ky.	50,000	General Improvements	5½	2.83 (basis)
7/9/56	Waukesha, Wis.	1,000,000	School	11½	2.47 (basis)
7/10/56	Alameda School District Los Angeles Co., Calif.	111,000	Buliding	9⅖	348. (basis)
7/10/56	Downey City School District Los Angeles Co., Calif.	76,000	School	10	3.56 (basis)
7/10/56	Greater Rockford Airport Authority, Ill.	450,000	Airport	12	2.495
7/10/56	Holyoke, Mass	300,000	Highway	3	2.08 (basis)
7/10/56	Norwich, N. Y.	475,000	General Purpose	7⅖	2.46 (basis)
7/10/56	Portland, Me.	815,000	General Improvements	10½	2.231(basis)
7/11/56	North Royalton, Ohio, Local School District	300,000	Building	10⅚	3.46 (basis)
7/11/56	Van Buren, N. Y., Seneca Water District	185,000	Water	17	3.17 (basis)

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The PF-90 has proved it can meet the most rigid state paving specifications, too — already more than 30 states have approved it and others are being added every month. It also has the traction to handle boxcar size trucks on rough grades and its big hopper will handle approximately 10 tons of asphaltic materials. For complete details see your Blaw-Knox Distributor.

Rubber-tired mounting of the Blaw-Knox PF-90 has allowed it to lay up to 270 tons per hour.

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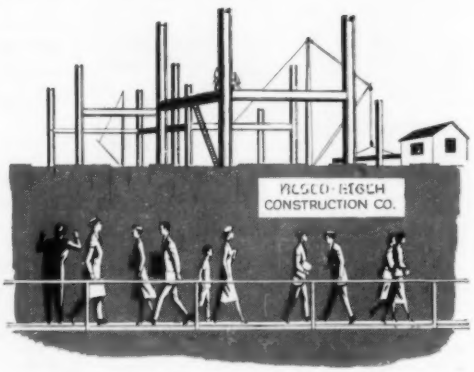

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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Sept. 6-8—New York, N. Y.
NEW YORK STATE CONFERENCE OF MAYORS. Annual Convention (Hotel Waldorf-Astoria). Exec. Sec., Morgan Strong, 6 Elk St., Albany, N. Y.

Sept. 6-8—Grand Rapids, Mich.
MICHIGAN MUNICIPAL LEAGUE. Annual Convention (Pantlind Hotel). Dir., John H Huss, 205 S. State St., Ann Arbor, Mich.

Sept. 7-11—Grd. Teton Natl. Pk., Wyo.
NATIONAL CONFERENCE OF STATE PARKS. Annual Meeting (Jackson Lake Lodge). Exec. Sec., Harlean James, 901 Union Trust Bldg., Washington 5, D. C.

Sept. 9-13—Chicago, Ill.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Conrad Hilton Hotel). Exec. Sec., Leroy E. Wike, Mills Bldg., Pennsylvania Ave. at 17th St. NW., Washington 6, D. C.

Sept. 9-14—Seattle, Wash.
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Convention (Olympic Hotel). Exec. Sec., Alfred B. LaGasse, 143 S. Lincoln Ave., Aurora, Ill.

Sept. 10-12—Kansas City, Mo.
MISSOURI MUNICIPAL LEAGUE. Annual Convention (Hotel Muehlebach). Exec. Dir., Bruce J. Carl, 212-214 Guitar Bldg., Columbia, Mo.

Sept. 12-14—Bolton Landing, N. Y.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Annual Meeting (Sagamore Inn). Sec., Kimball Blanchard, Rensselaer Valve Co., c/o Ludlow Valve Co., 11 W. 42nd St., New York 17, N. Y.

Sept. 12-14—Kalamazoo, Mich.
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Annual Meeting (Hotel Burdick). Exec. Sec., T. L. Vander Velde, Chief, Section of Water Supply, Michigan Dept. of Health, Lansing 4, Mich.

Sept. 12-14—St. Paul, Minn.
AMERICAN WATER WORKS ASSOCIATION—North Central Section. Annual Meeting (Hotel Lowry). Sec.-Treas., Leonard N. Thompson, Room 216, Court House, St. Paul 2, Minn.

Sept. 16-20—Banff, Alberta, Canada
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Convention (Banff Springs Hotel). Exec. Dir., Orin Nolting, 1313 E. 60th St., Chicago 37, Ill.

Sept. 16-20—Bretton Woods, N. H.
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Mt. Washington Hotel). Sec., Joseph C. Knox, 73 Tremont St., Boston, Mass.

Sept. 17-18—Topeka, Kans.
LEAGUE OF KANSAS MUNICIPALITIES. Annual Convention. Exec. Dir., Allen E. Pritchard, 512 Capitol Federal Bldg., Topeka, Kans.

Sept. 17-19—Chattanooga, Tenn.
AMERICAN WATER WORKS ASSOCIATION—Kentucky-Tennessee Section. Annual Meeting (Hotel Patten). Sec., J. W. Finney, Jr., 553 S. Limestone St., Lexington, Ky.

Sept. 17-20—Denver, Colo.
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Convention (Cosmopolitan Hotel). Sec., Irvin Shulsinger, 130 W. 42nd St., New York 36, N. Y.

Sept. 17-20—St. Louis, Mo.
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Sheraton-Jefferson). Exec. Vice-Pres., G. W. Anderson, 292 Madison Ave., New York 17, N. Y.

Sept. 17-21—Boston, Mass.
ILLUMINATING ENGINEERING SOCIETY. National Technical Conference (Hotel Statler). Exec. Sec., A. D. Hinckley, 1860 Broadway, New York 23, N. Y.

Sept. 19-21—Columbus, Ohio
OHIO MUNICIPAL LEAGUE. Annual Convention (Neil House). Acting Dir., J. E. Gotherman, 85 S. Grant Ave., Columbus.

Sept. 19-21—Atlanta, Ga.
GEORGIA WATER AND SEWAGE ASSOCIATION. Annual Meeting (Georgia Institute of Technology). Sec.-Treas., A. T. Storey, 1210 Hemphill Ave., N. W., Atlanta, Ga.

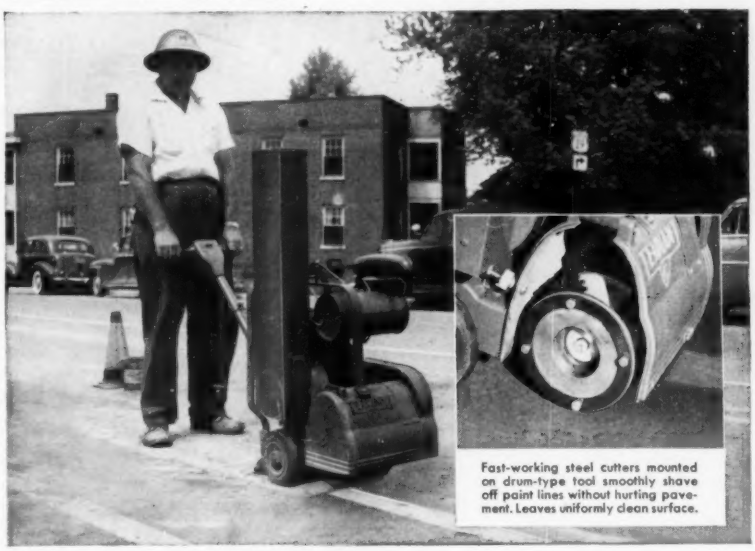
Sept. 19-21—Aberdeen, S. D.
SOUTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Meeting (Hotel Sherman). Exec. Sec., Charles E. Carl, Director, Division of Sanitary Engineering, State Health Department, Pierre, S. D.

Sept. 20-22—Grand Forks, N. D.
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Convention (Hotel Dacotah). Exec. Sec., Mrs. Roberta B. McCreery, 408½ Main Ave., Bismarck, N. D.

***Sept. 23-25—Falls City, Nebr.**
LEAGUE OF NEBRASKA MUNICIPALITIES. Annual Convention (Stephenson Hotel—City Auditorium). Exec. Sec.-Treas., A. G. Wurst, 303 Continental Bldg., Lincoln.

Sept. 23-25—Roanoke, Va.
LEAGUE OF VIRGINIA MUNICIPALITIES. Annual Convention (Hotel Roanoke). Exec. Sec., Harold I. Baumes, 905 Travelers Bldg., Richmond 19, Va.

(Continued on page 185)



Fast-working steel cutters mounted on drum-type tool smoothly shave off paint lines without hurting pavement. Leaves uniformly clean surface.

New portable TENNANT machine...

removes traffic lines in 1 fast operation

For about 1¢ per foot... this machine provides a practical method of erasing old traffic lines. Does a complete job—without need for extra equipment, chemicals or large crews. Works up to 5 times faster than other methods. Easy handling makes it ideal for use on streets, highways, parking lots, airports, etc. Works during normal hours without tying up traffic.

Does permanent job without injury to pavement

Machine has self-propelling action. Operator merely guides it over traffic lines. Cylindrical tool with scores of steel cutters revolves at 1450 rpm—smoothly shaves off paint in one operation. Covers path 4" wide; adjustable to cover path up to 7" wide.

- Works up to 5 times faster than other methods.
- Erases paint lines permanently; does not hurt surface.
- Portable . . . one-man operation . . . has self-propelling action.
- Works during normal hours without tying up traffic.
- May be used on concrete or asphalt.
- Covers path 4" wide; adjustable up to 7" width.

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AERO MAPS
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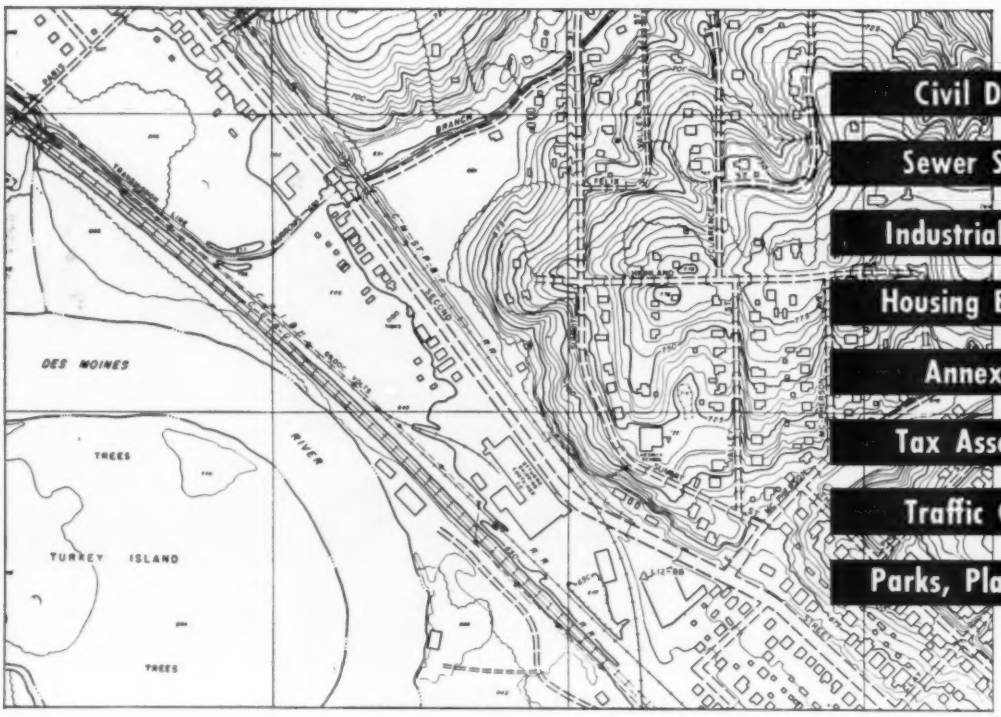

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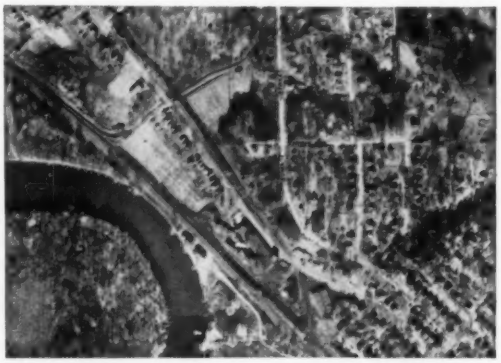

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Conventions—When and Where

(Continued from page 183)

Sept. 23-26—Bedford, Pa.
PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOCIATION. Annual Convention (Bedford Springs Hotel). Sec.-Treas., Claude C. Fogelman, 1717 Main St., Northampton, Pa.

Sept. 23-26—Fort Worth, Texas
AMERICAN PUBLIC WORKS ASSOCIATION. Public Works Congress and Equipment Show (Will Rogers Memorial Auditorium and Coliseum and Exhibit Bldg.). Exec. Sec., D. F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

Sept. 24-28—San Francisco, Calif.
INSTITUTE OF TRAFFIC ENGINEERS. Annual Convention (Mark Hopkins Hotel). Exec. Sec., David M. Baldwin, 211 Strathcona Hall, New Haven 11, Conn.

Sept. 25-27—Louisville, Ky.
KENTUCKY MUNICIPAL LEAGUE. Annual Convention (Hotel Brown). Exec. Sec., Carl B. Wachs, Room 64, McVey Hall, University of Kentucky, Lexington, Ky.

Sept. 26-28—LaCrosse, Wis.
AMERICAN WATER WORKS ASSOCIATION—Wisconsin Section. Annual Meeting (Hotel Stoddard). Exec. Sec., Superintendent of Waterworks, City Hall, Madison 3, Wis.

Sept. 30-Oct. 2—Jefferson City, Mo.
AMERICAN WATER WORKS ASSOCIATION—Missouri Section jointly with Missouri Water and Sewage Conference. Annual Meeting (Hotel Governor). Exec. Sec., W. A. Kramer, State Office Bldg., Jefferson City, Mo.

Oct. 1-5—Philadelphia, Pa.
NATIONAL RECREATION ASSOCIATION OF THE UNITED STATES. International Recreation Congress (Bellevue-Stratford Hotel). For further information address Robert R. Gamble, Asst. Secretary General, IRC, United Nations Plaza and 46th St., New York 17, N. Y.

Oct. 4-5—Des Moines, Iowa
LEAGUE OF IOWA MUNICIPALITIES. Annual Convention (Hotel Fort Des Moines). Exec. Sec., Max A. Conrad, 409 Tama Bldg., Burlington, Iowa.

Oct. 7-11—Washington, D. C.
ASSOCIATION OF SCHOOL BUSINESS OFFICIALS OF THE UNITED STATES AND CANADA. Annual Convention (Sheraton-Park Hotel). Exec. Sec., Dr. Charles W. Foster, Business Officials of the U. S. and Canada, 1010 Church St., Evanston, Ill.

Oct. 8-10—Omaha, Nebr.
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. , Annual Meeting (Fontennelle Hotel). Gen. Consul, Charles S. Rhyne, 726 Jackson Pl. NW., Washington 6, D. C.

Oct. 8-11—Los Angeles, Calif.
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual Convention (Hotel Statler). Exec. Sec.—Editor, Ralph E. Fuhrman, 4435 Wisconsin Ave. NW., Washington, D. C.

Oct. 9-12—Atlanta, Ga.
UNITED STATES CIVIL DEFENSE COUNCIL. Annual Conference (Biltmore Hotel). Sec.—Exhibit Mgr., George F. Arnold, 181 S. Washington Blvd., Columbus, Ohio.

Oct. 9-12—Atlantic City, N. J.
PENNSYLVANIA WATER WORKS ASSOCIATION. Annual Meeting (Chalfonte Hotel). Sec., David Dunlap, 2609 N. Second St., Harrisburg, Pa.

Oct. 14-17—Chicago, Ill.
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference and Products Exhibit (Hotel Conrad Hilton). Exec. Vice-Pres., Albert H. Hall, 1001 Connecticut Ave., Washington 6, D. C.

Oct. 14-17—Little Rock, Ark.
AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Annual Meeting (Marion Hotel). Sec., Leslie A. Jackson, Robinson Memorial Auditorium, Little Rock, Ark.

Oct. 15-16—St. John, New Brunswick
AMERICAN WATER WORKS ASSOCIATION—Canadian Section, Maritime Branch. Annual Meeting (Admiral Beatty Hotel). Sec., J. D. Kline, c/o Public Service Commission of Halifax, P. O. Box 608, Halifax, Nova Scotia.

Oct. 15-17—Rye, N. Y.
GOVERNMENTAL RESEARCH ASSOCIATION. Annual Conference (Westchester Country Club). Sec., Elsie V. Haas, 684 Park Ave., New York 21, N. Y.

Oct. 18-19—Green Bay, Wis.
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Convention (Hotel Northland). Exec. Sec., Ed Johnson, 30 East Johnson St., Madison 3, Wis.

Oct. 21-23—Wichita, Kans.
KANSAS ASSOCIATION OF MUNICIPAL UTILITIES. Annual Convention (Broadview Hotel). Asst. Sec., A. D. McGuire, P. O. Box 99, Overland Park, Kans,

Oct. 21-23—Asheville, N. C.
LEAGUE OF NORTH CAROLINA MUNICIPALITIES. Annual Convention (George Vanderbilt Hotel). Exec. Dir., Mrs. Davetta L. Steed, 1009 Raleigh Bldg., Raleigh, N. C.

Oct. 21-24—Mobile, Ala.
AMERICAN WATER WORKS ASSOCIATION—Alabama-Mississippi Section. Annual Meeting (Battle House). Exec. Sec., Irving E. Anderson, District Engineer, U.S.G.S., P. O. Box 2052, Jackson, Miss.

(Continued on page 192)

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Municipal & Civic Publications

Publications on these pages are available from the addresses indicated in each listing and are usually free unless a price is given.

Waste Conference Proceedings

ENGINEERING BULLETIN, PURDUE ENGINEERING EXTENSION DEPARTMENT. *Proceedings of the Tenth Industrial Waste Conference held May 9-11, 1955 at Lafayette, Ind.* 581 *pp.*

This bulletin, Series No. 89, is a compilation of the technical papers presented at the Tenth Industrial Waste Conference held at Purdue University. The papers cover 47 separate presentations by authors and co-authors covering many phases of the industrial wastes field.

Telegraph Fire Alarm Systems

THE "OTHER SIDE" OF TELEPHONE VERSUS TELEGRAPH CONTROVERSY—*The Gamewell Company, Newton Upper Falls 64, Mass.* 1956. *Free.*

This collection of material is designed to show that the little red fire box is still the most dependable equipment in a fire alarm system. It discusses the telephone vs. the telegraph fire alarm systems, cites case histories from municipal experiences, and contains the findings of the National Board of Fire Underwriters.

A Prime Source of Municipal Data

THE MUNICIPAL YEAR BOOK 1956—*Edited by Clarence E. Ridley, Orin F. Nolting, and David S. Arnold. The International City Managers' Association,* 1313 *E. 60th St., Chicago* 37, *Ill.* 1956. 582 *pp.* $10.

The 1956 Municipal Year Book is again proof that this annual publication of The International City Managers' Association, is still one of the most authoritative and most comprehensive sources of information on municipal government in the United States.

This 23rd annual volume calls special attention to urban problems transcending the corporate limits of cities. Annexations occurring in more than 500 cities during the year and other metropolitan development are described with particular attention given to land use, land area, and legal processes. There is a survey report on one of the latest municipal functions—municipal housing codes. Data presented cover organization, standards, inspection, and enforcement.

Other new sections include information on municipal insurance operations on fire coverage, general public liability and motor-vehicle liability; organizational and financial data for central municipal garages and city-owned transit systems.

Most of the regular sections of the Year Book have been retained and brought up to date, and data for the individual city are summarized and presented in 24 major tables. Significant developments in 1955 in municipal activities (welfare, health, public works, planning, etc.) are reviewed by authorities in the field.

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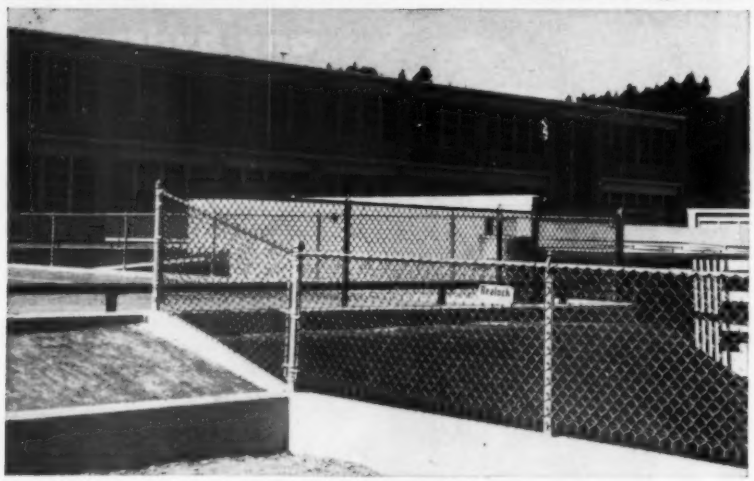

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HYDRAULIC DATA BOOK. *Leupold & Stevens Instruments, Inc., Portland, Ore.* 137 *pp.* $1.

A handy data book containing information on float wells and instrument shelters, errors in float-operated devices, and numerous tables useful to the hydraulic engineer. The book also contains illustrations of various types of recording instruments and methods of installation.

Municipal Press Relations

PRESS RELATIONS FOR LOCAL OFFICIALS—*By James C. MacDonald. Michigan Pamphlets No. 25. Bureau of Government, Institute of Public Administration, University of Michigan, Ann Arbor, Mich.* 1956. 50 *pp.* $1.

This booklet, based on suggestions and advice from the working press and persons active in the field of municipal government, offers a few simple rules to local officials on how to get a better press.

Officials are told what makes news; how to keep news reports accurate; the best ways to deal with reporters; and how to gain reader interest. The pamphlet makes the noteworthy suggestion that to have an informed citizenry "repetition counts most. . . . a 'block-buster' news approach to an important development is by no means the entire answer to the question of getting information across to citizens. The day-to-day coverage of continuing developments is far more important, for repetitive attention is a vital part of the learning process."

Accounting Techniques for Governments

GOVERNMENTAL ACCOUNTING—*By R. M. Mikesell, C.P.A. Richard D. Irwin, Inc., Homewood, Ill. Revised Edition.* 737 *pp.* $8.10.

This technical publication covers the different aspects in government accounting. It explains the different types of governmental funds (bonds, capital funds, etc.); accounting systems used by educational institutions and hospitals; and governmental auditing and reporting. Appendices include a municipal accounting terminology list and a standard audit procedure for municipalities.

Good Analysis of the Urban Renewal Program

THE HOUSING YEARBOOK 1956 — *National Housing Conference,* 1025 *Connecticut Ave., NW., Washington* 6, *D. C.* 1956. 80 *pp.* $3.

This annual publication of the National Housing Conference presents a summary report of the progress and problems of urban redevelopment since the program was begun in 1950. There are one-paragraph descriptions of more than 100 going projects in 73 cities in the country. The report shows how these cities rank in per capita costs of redevelopment projects; how the cities rank in percentage of total blighted areas being cleared; which of the nation's 100 largest cities have going projects, planned projects, or none at all; which states and possessions lead in the number of going projects; and finally, analyses of the lag in urban redevelopment programs. Written by persons distinguished in the housing field, this publication should be of informative value for public officials associated with housing and redevelopment programs.

Simplified Welding Procedures

WELDING DATA BOOK. *Technical information Service, Eutectic Welding Alloys Corporation,* 40-40 172*nd St., Flushing* 58, *N. Y.* 164 *pp. Free.*

This pocket-size data book is an excellent guide to improved torch and metallic arc welding, brazing, and soldering. The book includes information on fabrication, maintenance repair and salvage, overlaying for wear and corrosion resistance and welding of dirty and rusted parts.

The new data book features the best torch adjustments and electrode position and manipulation. Improved results through the use of correct fluxes is explained alloy by alloy. More than 60 "Low Temperature Welding Alloys" are described. The book will help shop foremen, purchasing agents, and welders determine new money-saving possibilities with easier, improved welding.

Eutectic's Pocket Data Book is also available from any of its district engineers.

Marriage and Divorce Laws as They Affect Municipalities

MARRIAGE AND DIVORCE—*National Institute of Municipal Clerks,* 1313 *E.* 60*th St., Chicago* 37, *Ill.* 1956. 17 *pp.* $2.

This booklet, containing the principal provisions of marriage and divorce laws of the 48 states and U. S. Territories, will be useful to all municipal clerks, whose duties include marriage licensing. It tabulates by states the main requirements for marriage and divorce.

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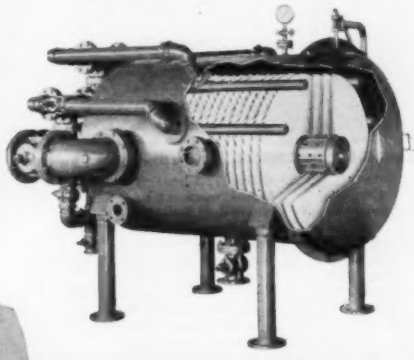

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Location and Design of Shopping Centers

AN ARCHITECT DISCUSSES SHOPPING CENTERS—*By Clinton Gamble, A.I.A., Gamble, Pownall & Gilroy, Fort Lauderdale, Fla.* 1956. 8 *pp. Free.*

This series of five articles on shopping centers was originally written for a Miami newspaper by a Fort Lauderdale architect who has had practical experience in designing shopping centers in Florida. Mr. Gamble discusses with authority and forethought the main problems in the development of modern shopping centers: location planning, store designs, and architectural problems. The series also follows the progress of the Cutler Ridge regional shopping center now being developed in South Dade County.

More on Municipal Salaries and Wages

MUNICIPAL WAGE AND SALARY SURVEY—*City of Manhattan Report No. 5562, Manhattan, Kans.* 1956. 41 *pp.*

This survey compares the municipal wage scale of the City of Manhattan with that of 30 municipalities in the four states (Kansas, Missouri, Nebraska and Oklahoma) in the Manhattan area. The area of study covers cities with a population between 10,000 and 40,000. Thirty-eight municipal job titles (not including top administrative posts, such as city engineer, manager, etc.) are listed according to pay range, total weekly work hours, pay rates. Cities are not named but are listed in code numbers and classified by population figures.

A Guide to Improved Street Drainage

THE DESIGN OF STORM WATER INLETS. *The Johns Hopkins University, Department of Sanitary Engineering and Water Resources, Baltimore, Md.* 193 *pp.* $5.

This book is devoted exclusively to the important problem of inlet design, including information on curb, gutter, deflector, combination, sump, and multiple inlets in depressed and undepressed settings, and on various crown slopes and gutter grades. The study also includes inlet rating curves and tables, nomographs and charts of gutter flow parameters, empirical equations and illustrated examples of their use, findings and recommendations.

Also included is a quick graphical method for determining capacities of single and multiple inlets, ideal for routine office use. The appendicies contain five published articles dealing with the hydraulic behavior of storm water inlets. This book will prove very useful to engineers responsible for highway and street drainage design.

The book can be obtained by writing to Paul Bock, project engineer, at the above address.

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Good Analysis of Performance Standards for Industrial Zoning

PERFORMANCE STANDARDS FOR INDUSTRIAL ZONING: AN APPRAISAL—*By Robert B. Garrabrant. Urban Land, Vol XV, No. 6. June* 1956. *Urban Land Institute,* 1200 *18th St., NW., Washington* 6, *D. C. Single copies* $1; 50 *cents to ULI members.*

How good is the performance zoning approach in controlling the location of industrial activities? Performance zoning —the zoning of industries on the basis of their external effects—is still in its initial stage and so far only 12 localities have adopted or proposed such ordinances. This article explores the merits and potential usefulness of performance zoning, examines the various ordinances that have been prepared, and evalutes performance standards for industrial emissions, such as noise, smoke and industrial wastes. Among Mr. Garrabrant's conclusions are:

". . . communities in preparing new and revised zoning ordinances, should consider the progressive adoption of some performance standards for industry."

To be useful a performance-standard zoning code cannot be bought ready-made or based on blind copying of provisions from other cities. It should be based on careful consideration of the conditions, circumstances, and desires of the home community.

Library Survey for Metropolitan Minneapolis

THE PUBLIC LIBRARIES OF MINNEAPOLIS AND HENNEPIN COUNTY: SURVEY OF FACTORS AFFECTING THEIR FUTURE RELATIONS—*By Frederick Wezeman for the Minneapolis Public Library,* 1001 *Hennepin Ave., Minneapolis* 3, *Minnesota.* 1956. 51 *pp.* $2.

This study points out how a central city and its suburban communities can achieve better public library service by the creation of a single, integrated metropolitan library system.

Illustrated with charts and graphs, the report takes up the history and service pattern of public libraries in Hennepin County and Minneapolis, the survey of library use, the deficiencies of the present county library system, analysis of the financial arrangement, a metropolitan library for the city and county, and other conclusions and recommendations.

Dealing with the Problems of Local Growth

PLANNING AND BUILDING FOR BETTER LIVING IN CITIES AND COUNTIES—*Department of City and Regional Planning. University of California, Berkeley.* 1956. 36 *mimeo. pp.* 75 *cents.*

The proceedings of the Third Annual University of California Conference on City and Regional Planning, 1955, are the subject of this report.

In "How Do We Finance Essential Facilities and Services in a Growing Community?" the city manager of Hayward, Calif., tells how his city expands its services to cope with the community's growth through the use of a residential development fee at the time of annexation. Municipal officials faced with expenditure problems in providing essential public services in a rapidly growing community will find the Hayward experience of particular interest.

Index of Recent Papers on Concrete

SUPPLEMENTAL FIVE-YEAR INDEX OF THE JOURNAL OF THE AMERICAN CONCRETE INSTITUTE. *American Concrete Institute, 18263 W. McNichols Rd., Detroit* 19, *Mich.* 72 *pp.* 35 *cents.*

This supplemental five-year Index lists Journal contributions such as papers, reports, and discussions by title, author, and subject. The first half of the book is devoted to the index and the second half to synopsis of the various papers and reports.

The new index supplements the American Concrete Institute 20-year Index covering September 1949 through June 1954. ACI Proceedings Vol. 46-50 and Journal Volume 21-25.

New Engineers' Joint Council Report

PROFESSIONAL STANDARDS AND EMPLOYMENT CONDITIONS. *Engineers Joint Council, 29 W. 39th St., New York* 18, *N. Y.* 14 *pp.*

A 14-page engineers joint council report representing the labors of many thoughtful people who have considered and discussed the problems of engineers as employees. The report sets forth the problems involved and lists recommendations for the improvement in the standing of the profession. A recommended report for engineers and employers of engineers.

The Changing Shape of Zoning Technology

ZONING ADVANCES IN THE NEW JERSEY-NEW YORK-CONNECTICUT METROPOLITAN REGION —*Regional Plan Association Bulletin No. 86, Regional Plan Association, Inc., 205 E. 42nd St., New York* 17, *N. Y.* 1956. 32 *pp.* $5.

The Regional Plan Association of New York started its long history of publishing important planning documents with the monumental Regional Plan of New York and Environs in 1927. It continues this tradition with this significant review of the shape of zoning progress in the cities and towns that make up the New York metropolitan area.

Let it be said that this is no historical review of the growth of zoning. Instead, it is one of the best qualitative discussions of the status of zoning techniques as a means of controlling land development in municipalities that has come along in the postwar years. Although the source of this analysis is the New York area, it is

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this reader's view that the report's discussion is just as applicable to municipalities in the San Francis area as it is to those in the Philadelphia area.

Henry Fagin, who authorized the report, divides present approaches to zoning in the New York area into two camps. The first is the traditional approach in which a specific list of things which a property-owner may and may not do on his land is predetermined and set into the ordinance. These are self-administering regulations "wherein the rights are definite and require no discretion or judgment" on the part of the enforcing agents. Mr. Fagin discusses such new developments under this approach as the growing use of performance standards in industrial zoning, the exclusion of residences in business and industrial zones, and advances in the use of floor area ratios.

The second approach, which recognizes the difficulty of predetermining all the requirements for each use, specifies certain special uses which may be permitted after applications have been reviewed and judged as to the use's compatibility with surrounding land development.

Following sections discuss the broadening scope of control which zoning is assuming. Mr. Fagin focusses his attention here on the control of the architectural appearance of neighborhoods, means of controlling the timing of land development, the regulation of building sizes, etc. Other zoning topics covered include parking and off-street loading requirements, the elimination of nonconforming uses, regional aspects of zoning and zoning administration. This report will be of primary interest to officials in suburban and small town areas, for the examples given in the report are predominantly in communities of less than 25,000 persons.

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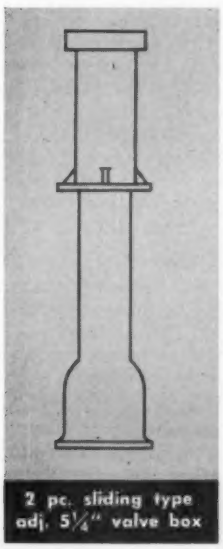

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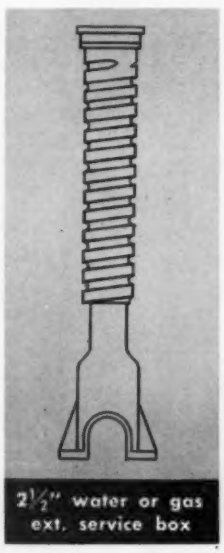

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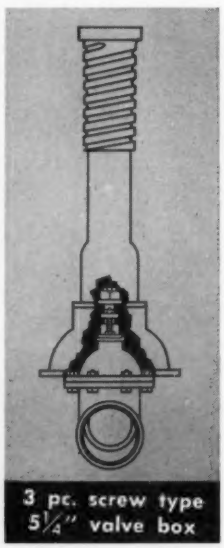

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Other Reports Received

Annual Reports

CHICAGO, ILL.—1955 Annual Report.

GROTON, CONN.—Annual Report for the year ended March 31, 1956.

HOLTON, KANS.—1955 Annual Report.

QUAKERTOWN, PA.—1955 Annual Report.

WESTBURY, N. Y.—1955 Annual Report.

Finance and Taxation

GEORGIA—Salaries of Municipal Officials in Georgia—1956. Prepared by the Bureau of Public Administration, in cooperation with The Georgia Municipal Association. $1.

OHIO—1955 Salaries and Wages—Ohio Villages. Prepared by the Ohio Municipal League.

Laws and Legal Decisions

CHICAGO, ILL.—1955 Annual Report of the Department of Law.

Lighting

SEATTLE, WASH.—1955 Annual Report of the Department of Lighting.

Parks and Playgrounds

NEW YORK, N. Y.—22 Years of Progress, 1934-1956. Prepared by the Department of Parks. Illus. Maps. 61 pp.

Personnel

VIRGINIA—Salaries and Working Conditions of Firemen In Various Virginia Fire Departments. Prepared by the League of Virginia Municipalities, 905 Travelers Bldg., Richmond 19, Va. 75 cents.

Planning, Housing and Zoning

BALTIMORE, MD.—1955 Annual Report of the Housing Authority of Baltimore City.

CHICAGO, ILL.—1955 Annual Report of the Department of Buildings.

——First Supplement to Index of Sources of Data for the Chicago Metropolitan Area. Prepared by the Chicago Community Inventory, University of Chicago, for the Chicago Plan Commission and the Office of the Housing Redevelopment Coordinator, May 1956.

GENERAL—1954 Annual Report of the Federal Housing Administration.

Water

DUBUQUE, IOWA—1955 Annual Report of the Water Department.

GARDNER, MASS.—1955 Annual Report of the Water Department.

WATERVILLE, MAINE—1955 Annual Report of the Kennebec Water District.

WESTCHESTER COUNTY, N. Y.—Water Supply Problems. Preliminary Report. December 1955. Prepared by the Westchester County Water Agency, S. P. Carman, Consulting Engineer. 14 pp. Appendices.

Planning and Redevelopment Terms For Citizens

Playfield—Larger area than a playground, providing ample space for an active recreational program, including team sports such as baseball, football, field hockey, etc., not limited in use to smaller children.

Playground—A designated amount of space improved and maintained for the provision of active recre-

ational facilities, usually limited in use to children of the first six school grades.

Radial—A major street extending outward from the center or "hub" of a city, connecting the central business district with all other major areas of the city and the principal highways leading to other communities.

Redevelopment — (in Pennsylvania). The acquisition, replanning, clearance, rehabilitation, or rebuilding, of an area for residential, recreational, commercial, industrial, or other purposes, including the provision of streets, parks, recreational areas, and other open spaces.

Region—Generally accepted as a designation for an area including two or more states; although it is used in the East to refer to a contiguous urban area.

Slum Area—An area in which an advanced stage of deterioration has been reached which makes demolition and razing of the area the only practical course of action, in order to make possible rehabilitation.

Topographic Map—Indicates variations in height above sea level and variations in the terrain by use of contour lines; drainage conditions; structures, including public, industrial, and commercial buildings; railroad lines and rights of way bench marks and traverse and triangulation monuments; property boundaries; explanatory legends and wooded areas.

Traffic Count—Numerical tabulation of the number of vehicles passing a given point within a specific period of time.

Traffic Flow—The movement of vehicles and pedestrians at a given time and place.

Urban Places—Incorporated places of 2,500 or more, and unincorporated places of this size outside urban fringes.

Zoning—The regulation of land use and buildings through the adoption of recognized and proven standards applicable on a community-wide basis.

This is the third and last installment of a three-part series of planning and redevelopment terms for citizens; the first appeared on page 193 of the June issue and the second on page 172 of the July issue. For reprints of the complete series, which are available without charge in quantities of 10 or less, write to the Editor.

"The jobs it will do . . . the savings it makes . . . put BANTAM in a class by itself,"

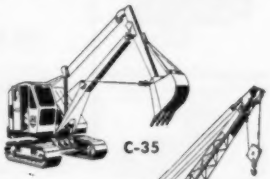
say city officials!

BANTAM takes over hundreds of jobs around town, saving time and manpower on each—sparing expensive one-job equipment. BANTAM is the ideal size for easy driving and easy working, whatever and wherever the job may be. It's the lowest priced rig of its kind to buy . . . the lowest cost and easiest to maintain!

City engineers are BANTAM minded because of its unusual versatility and big return on investment—summed up by one official's statement: "Outside of our trucks, BANTAM is used more than any other piece of equipment."

You name the job—if it's lifting, digging, loading, handling materials, driving pile, your BANTAM with its easy-change attachments is ready for it. Carrier, crawler and self-propelled models from 10,000 to 14,000 lb. crane capacity . . . 90 to 100 yd. per hour digging production.

There's good reason why BANTAM builds more of this kind of machine than all others combined! One demonstration will show you. See your BANTAM distributor or send coupon.



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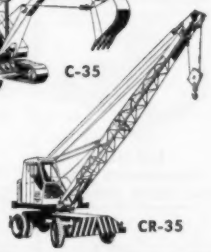

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☐ Carrier mounted ☐ Crawler mounted ☐ Self-propelled

With information on these attachments:

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Name _____ Title _____

Address _____

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World's Largest Producers of Truck Cranes and Excavators

Conventions—When and Where

(Continued from page 185)

Oct. 22-24—Atlanta, Ga.
GEORGIA MUNICIPAL ASSOCIATION. Annual Convention (Dinkler-Plaza). Sec., Zach Arnold, 1403 C&S National Bank Bldg., Atlanta, Ga.

Oct. 22-24—New York, N. Y.
NATIONAL ASSOCIATION OF HOUSING AND REDEVELOPMENT OFFICIALS. Annual Convention (Hotel Statler). Exec. Dir., John D. Lange, 1313 E. 60th St., Chicago 37, Ill.

Oct. 23-26—San Diego, Calif.
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Meeting (U. S. Grant Hotel). Sec., H. J. Ongerth, Engineer, State Department of Health, 2180 Milvia St., Berkeley, Calif.

Oct. 24-26—Baltimore, Md.
AMERICAN WATER WORKS ASSOCIATION—Chesapeake Section. Annual Meeting (Sheraton Belvedere). Sec., C. J. Lauter, 6955 33rd St. NW., Washington 15, D. C.

Oct. 25-27—Lubbock, Texas
LEAGUE OF TEXAS MUNICIPALITIES. Annual Convention (Lubbock Hotel). Exec. Dir., E. E. McAdams, 105 W. 14th St., Austin 1, Texas.

Oct. 31-Nov. 2—Bluefield, W. Va.
AMERICAN WATER WORKS ASSOCIATION—West Virginia Section. Exec. Sec., Hugh Hetzer, West Virginia Water Service Co., 179 Summers St., Charleston 1, W. Va.

Nov. 1-2—Omaha, Nebr.
NEBRASKA SEWAGE & INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Castle Hotel). Sec.-Treas., V. J. Lechtenberg, 614 Standard Oil Bldg., Omaha 2, Nebr.

Nov. 7-9—Old Point Comfort, Va.
AMERICAN WATER WORKS ASSOCIATION—Virginia Section. Annual Meeting (Hotel Chamberlin). Sec.-Treas., J. P. Kavanagh, 213 Carlton Terrace Bldg., Roanoke, Va.

Nov. 10-12—Atlantic City, N. J.
ADULT EDUCATION ASSOCIATION OF THE UNITED STATES. Annual Convention (Chalfonte-Haddon Hall). Administrative Coordinator, Malcolm S. Knowles, 743 N. Wabash Ave., Chicago 11, Ill.

Nov. 11-13—Little Rock, Ark.
ARKANSAS MUNICIPAL LEAGUE. Annual Convention (Hotel Marion). Exec. Dir., Glenn G. Zimmerman, 416 Maple St., North Little Rock, Ark.

Nov. 11-13—Springfield, Ill.
ILLINOIS MUNICIPAL LEAGUE. Annual Convention (Hotel Leland). Exec. Dir., A. L. Sargent, 537 S. 4th St., Springfield, Ill.

Nov. 11-14—Memphis, Tenn.
NATIONAL MUNICIPAL LEAGUE. National Conference on Government (Peabody Hotel). Exec. Dir., Alfred Willoughby, 47 E. 68th St., New York 21, N. Y.

Nov. 11-18—Tucker's Town, Bermuda
AMERICAN CONCRETE PRESSURE PIPE ASSOCIATION. Annual Convention (Castle Harbour Hotel). Managing Dir., Howard F. Peckworth, 228 N. LaSalle St., Chicago 1, Ill.

Nov. 12-14—Charlotte, N. C.
AMERICAN WATER WORKS ASSOCIATION—North Carolina Section. Annual Meeting (Charlotte Hotel). Exec. Sec., W. E. Long, Jr., Chief, Pollution Control Section, State Stream Sanitation Committee, State Board of Health, P. O. Box 2091, Raleigh, N. C.

Nov. 12-15—Miami, Fla.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Conference (Biscayne Terrace Hotel). Sec.-Mgr., B. Richter Townsend, Hotel Martinique, Broadway at 32nd St., New York 1, N. Y.

Nov. 12-16—Atlantic City, N. J.
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting (Convention Hall). Exec. Sec., Reginald M. Atwater, M.D., 1790 Broadway, New York 19, N. Y.

Nov. 13-16—Atlantic City, N. J.
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Convention (Chalfonte-Haddon Hall). Exec. Dir., Mrs. Madeline S. Frost, 603 Trenton Trust Bldg., Trenton, N. J.

Nov. 13-16—Los Angeles, Calif.
NATIONAL TAX ASSOCIATION. Annual Convention (Biltmore Hotel). Sec., Ronald B. Welch, P. O. Box 1799, Sacramento 8, Calif.

Nov. 15-17—Fort Lauderdale, Fla.
FLORIDA LEAGUE OF MUNICIPALITIES. Annual Convention (Lauderdale Beach Hotel). Exec. Sec., Gordon T. Butler, 401 Exchange Bldg., Jacksonville, Fla.

Nov. 25-28—St. Louis, Mo.
AMERICAN MUNICIPAL ASSOCIATION. Annual Meeting (Park Plaza-Chase). Exec. Dir., Patrick Healy, Jr., 1625 H St., NW., Washington 6, D. C.

Nov. 25-29—Miami Beach, Fla.
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Convention (Hotel Seville). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

Nov. 26-28—Colorado Springs, Colo.
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Meeting (Broadmoor Hotel). Sec.-Treas., Jack W. Davis, 301 Continental Oil Bldg., Denver, Colo.

Nov. 27-30—Atlantic City, N. J.
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Convention (Traymore Hotel). Exec. Sec., A. E. Johnson, 917 National Press Bldg., Washington 4, D. C.

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For underground installations, only the *highest quality* should be considered . . . that's why Water Departments all over the country have been using HAYS Water Service Products for over 80 years.

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Have you investigated the advantages of the HAYS DUO-STOP, (a combined Corporation Stop and Saddle) for safe and easy installation on small service lines?

The HAYS Model B Tapping Machine, with aluminum alloy body, is ⅓ lighter, easier to carry, easier and faster to operate, gives more working room . . . really designed for "the man in the ditch."

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Dec. 2-5—Philadelphia, Pa.
PENNSYLVANIA LEAGUE OF CITIES. Annual Convention (Bellevue-Stratford). Exec. Dir., John N. O'Neil, Room 302, City Hall, Harrisburg, Pa.

Dec. 4-7—Chicago, Ill.
AMERICAN PUBLIC WELFARE ASSOCIATION. Annual Convention (Edgewater Beach Hotel). Exec. Dir., Loula Dunn, 1313 E. 60th St., Chicago 37, Ill.

***Jan. 7-11—1957—Washington, D. C.**
HIGHWAY RESEARCH BOARD. Annual Meeting (Sheraton-Park). Dir., Fred Burggraf, 2101 Constitution Ave., Washington, D. C.

Jan. 28-Feb. 2—Chicago, Ill.
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Convention and Road Show (Chicago Amphitheater). For further information address the ARBA, 600 World Center Bldg., Washington 6, D. C.

March 17-21—San Francisco, Calif.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Convention (Sheraton Palace). Exec. Dir., Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

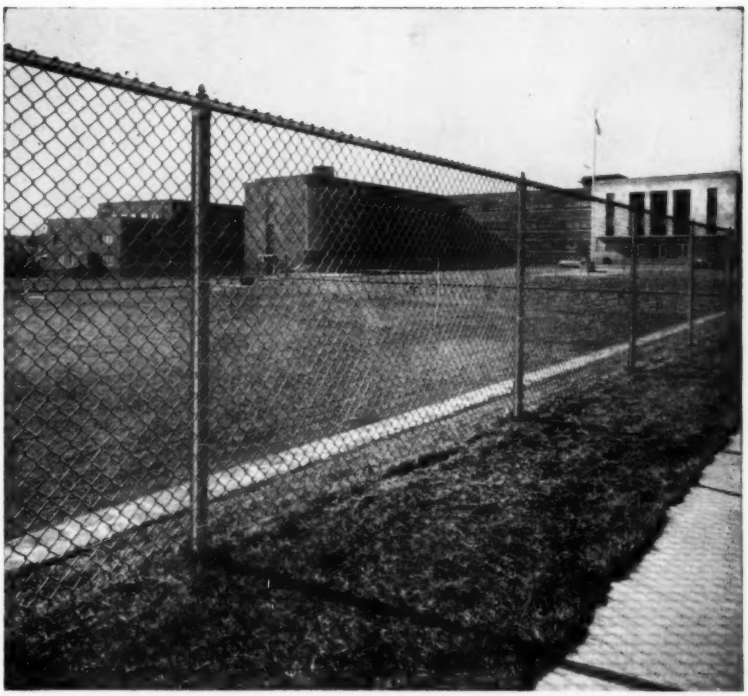
March 21-23—Chicago, Ill.
AMERICAN SOCIETY FOR PUBLIC ADMINISTRATION. Annual Convention (Hotel Sherman). Sec.-Treas., Miss Laverne Burchfield, 1313 E. 60th St., Chicago 37, Ill.

State Supreme Courts Uphold Local Housing Codes

DECISIONS in state supreme courts in Arkansas, Maryland, and South Carolina have upheld the rights of municipalities to enforce minimum housing standards through local housing codes. In other states, action is pending before the high courts. Pennsylvania's supreme court has been asked to pass on Philadelphia's housing code. In Colorado, a case may be presented to the state's supreme court if opponents of Denver's new housing code pursue their contention that the code is unconstitutional because it allows the taking of substandard property without compensating for the loss.

According to the National Association of Housing and Redevelopment Officials, the reason for the rash of supreme court decisions is that the increasing strictness of the local laws is causing affected property owners to insist on top judgments attesting to the validity of these codes.

Cities have been encouraged to insist on certain dwelling standards because only those who can show they are developing housing codes are eligible for federal aid under the urban renewal program. Thus more and more municipalities are stressing slum prevention and making it harder for property owners who fail to comply with requirements for toilet and other plumbing facilities, heat, ventilation, fire protection, occupancy, and the like.



Every school needs an Anchor Fence

Handsome Anchor Chain Link Fence provides safety and protection for both pupils and property. By day, Anchor keeps pupils safely inside—trespassers and unwanted animals stay out. At night, Anchor stands guard against vandals and intruders . . . helps preserve an orderly, well-kept appearance.

And this 24-hour protection is low-cost too. An Anchor Fence needs no annual painting or upkeep. Deep-driven anchors keep the fence erect and sturdy year after year in all kinds of weather and soil conditions.

Insist on *GENUINE* Anchor Fence

Look for the famous orange-and-black nameplate that means you're getting the finest chain link fence—the fence with the zinc coating applied *after* weaving, not *before*. For a free estimate or more information, call your local Anchor office or write: ANCHOR POST PRODUCTS, INC., *Fence Division*, 6908 Eastern Avenue, Baltimore 24, Maryland.

Anchor Fence®

Division of ANCHOR POST PRODUCTS, *Inc.*

Plants in Baltimore, Md.; Houston, Texas; and Los Angeles, California
Sold direct from Factory Branches and Warehouses in all principal cities

How 1 machine does work of 2

Suppose your city maintains 1 or 2 landfill garbage dumps. A front-end loader at each dump might cover about 100 tons of garbage daily. Neither rig is kept busy full-time, but it isn't worth the trouble and expense to load them on trailers and haul them around to do other jobs.

Then you get a D Tournapull. Just one. On a typical day your high-speed, rubber-tired "D" completes a schedule like this:

8:00 A.M. Operator reports for work, climbs on Tournapull and drives off. No waiting for flatbed, no loading or blocking. 28 m.p.h. rig averages 10 to 15 mph through traffic.

8:10 A.M. Arrives at city garbage dump 2 miles from garage. "D" uses its dozer blade to level refuse and its 7-yd. Carryall-Scraper to load, haul, and spread sand cover. Instead of *crawling*, it *runs* at its tasks . . . cleans up entire No. 1 Dump by 10:45 A.M. Drives to next job.

11:00 A.M. Rig reaches second dump, 3 miles away, gets right to work dozing garbage.

12:00 Noon. Lunch hour.

1:00 P.M. Continues hauling and spreading fill. Digs trench for future garbage burial and stockpiles earth for cover material.

2:35 P.M. Tournapull finishes at Dump No. 2, is ready to return to Dump No. 1, or handle odd-job assignment. Foreman sends Tournapull to grade small city-owned parking lot downtown.

2:50 P.M. Arrives at site after 2-mile drive. Removes dirt from parking lot and dumps it in old excavation a block away. "D" moves 70 cu. yds. hourly on 1600' cycle . . . in 2 hours levels lot to hold 60 cars. Next time Tournapull has a few spare hours, it will be used to self-load, haul, and spread gravel on the lot.

4:50 P.M. Operator and rig take off for yard, drive a mile through rush-hour traffic in 5 minutes, are back at garage before 5 o'clock.

Impossible for 1 machine to do all this work in 8 hours? It happens every day in cities which own D Tournapulls. Dallas, Texas, for example, works *1* "D" at *5* widely-scattered garbage dumps.

When "D" is ahead on land-fill jobs, this multi-purpose machine can be kept busy on other assignments such as hauling fill to low spots in roadways, cutting drainage ditches, landscaping city parks, and many other assignments beneficial to the taxpayers. Machine travels anywhere in city within a half-hour — without special equipment to load and haul.

Ask your LeTourneau-Westinghouse Distributor for job-proved facts and figures on how American cities are getting better service with D Tournapull. He also will be glad to show you this handy rig in action.

Carryall, Tournapull—Trademark Reg. U.S. Pat. Off.
DP-343-P-zz-w

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Co.

The National Highway Program—A Challenge To Cities

(Continued from page 11)

ties all have a vital interest in helping it along to the best of their means. To do this, specific steps are open for them to take.

Every city ought to have on file a copy of the Bureau of Public Roads publication, "General Location of National System of Interstate Highways" (U. S. Government Printing Office, Washington 25, D. C., price 55 cents). This shows the proposed network of routes, all still subject to change within limits. Any city to be affected by this routing properly should make its wishes known now to its respective state highway department.

The larger cities serving as terminal and intersecting points in the system must give particularly close attention to the proposed routing through and around their areas. These too, already have been set, presumably to the satisfaction of local city officials and are shown in the same publication. The routing still can be changed to a limited degree, giving cities the opportunity to direct the express highway through distressed areas and permitting it to serve as a means of clearing certain spots of urban blight. Attention to the routing of the system now will eliminate the costly hazard of the highway's scooping up valuable tax-paying property, and dealing an expensive blow to the city's financial structure.

Affected cities also must give concentrated attention to the way traffic will be handled as it leaves the new highway and enters its downtown area. Suburban municipalities reached by the routes must be ready to work together to see that the selection of the route is to their best interests.

An Opportunity

Cities generally ought to consider this an opportunity to persuade their respective state legislatures that utility changes be recognized as a legitimate highway construction cost. This big program ought to present an opportunity to overcome this long-time inequity.

The Highway Bill gives cities a great opportunity to break the choking bottlenecks that now hamper their continued economic growth. At the same time, however, it challenges cities to set their city planning ma-

chinery in high gear and get the utmost benefit that these big traffic arteries can provide.

One cannot escape the fact that $16 billion will be spent on arteries in and around urban areas. Cities have not only the right, but the obligation to see that it is spent wisely.

Suburb Stages CD Evacuation Test

MORE THAN 700 persons were evacuated from their homes in Webster Groves, Mo., recently when officials in this 25,000-person community ordered a civil defense test. The evacuees represented 90% of the population of an 18-block residential area. Under the direction of Joseph N. Rosenauer, Webster Groves' civil defense director, the 700 persons moved from their homes to a staging area at a nearby high-school stadium where they remained until the completion of the test. Although some of the evacuees used cars, most traveled to the staging area on foot. Many small children were carried in their parents' arms or pushed in strollers. Mr. Rosenauer pointed out that under actual attack conditions, the staging area would have been 25 or more miles distant.

Air-raid warnings were signaled in the Webster Groves test neighborhood by police car sirens. This was necessary because actual civil defense sirens recently installed in the St. Louis suburb were inoperative because their electrical and telephone connections had not yet been installed.

More than 250 volunteers took part in the test, including amateur radio operators, Boy Scouts, the Red Cross, and civil defense units from surrounding communities.

Crack-down on Weeds in St. Louis

ST. LOUIS property owners are finding that it doesn't pay to let their weeds grow.

Under a new weed-control ordinance, effective this summer, when an owner fails to trim his weeds properly and the city has to do the job, officials can recover the cost of the work by placing a lien against the property. The old ordinance did not permit this. The new law also provides the city with a $25,000 revolving fund to finance its weed-cutting operations.

On this road-widening job, surplus materials are loaded from windrow into truck in a matter of seconds. No traffic interference.

How high-speed loader keeps busy all year 'round

This heavy-duty, self-propelled, belt-type loader has a wide range of applications for highway departments. It loads practically any type of loose material out of windrows or stockpiles, it gets around fast from job-to-job . . . over city streets and highways at speeds to 26.7 mph.

How it works

TraveLoader loads from windrows, stockpiles, or earth, sand or gravel borrow pits. It has a wide range of 5 working speeds from 0.29 to 1.9; has 5 travel speeds from 3.90 to 26.7. The floating, revolving, screw-type feeder automatically adapts itself to the load ahead and places a continuous flow of material on the conveyor-belt. Trucks can be loaded with loose materials at up to 10 yards per minute. Trucks load behind loader, do not interfere with passing traffic.

Cities have many year 'round uses for TraveLoader. For instance, ice and snow on city streets can be loaded at the rate of 12 to 20 cubic yards per minute.

Heavy, durable construction

All-welded, box-construction, one-piece frame extends full length of machine. Heavy-duty front and rear axles, sturdy feeder mechanism, rigid conveyor with sealed-for-life roller bearings, give TraveLoader the necessary strength to handle heavy loads at fast speeds with minimum downtime and maintenance. *Available with gasoline or diesel engines.*

Easy to operate

You will like TraveLoader's centrally-located control station . . . up out of the dust, permitting clear vision in all directions. Easy, fast, hydraulic controls, give quick adaptability to any working condition.

Get all the facts on the Adams TraveLoader from your LeTourneau-Westinghouse Distributor.

AL-5-G-z

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Co.

Arizona's Reflectorized Shoulder Stripe

Continued from Page 161

section of U. S. 89, just north of the Arizona-Mexico border town of Nogales. The second highway to receive the white shoulder stripe treatment was a 25-mile section on U. S. 66, just west of Kingman, Ariz.

It was hoped that the shoulder stripe would:

- ***spread traffic over 20 feet instead of 12 feet.*** (In the case of a pending or near-accident this would provide more room in which to maneuver. It would also definitely establish the edge of the pavement and should assist in reducing single-car accidents.)
- ***have a tendency to make the motorist move to the right, away from the centerline,*** and thereby aid in the reduction of head-on collisions.

It was also decided to place a shoulder stripe at all bridge and culvert structures.

There are definite indications that the shoulder stripe has been very effective north of Nogales, and the original 15-mile section has now been extended to a total of 30 miles. The accident record on two identical sections—where the same traffic passes over both sections but one has the shoulder stripe and the other does not — emphatically favors the one with the shoulder stripe.

We believe the bridge striping to be logical and that it must be a good thing, but we do not have any facts as yet to prove this point.

To keep drivers from looking upon the shoulder stripe as a centerline and to keep them from driving to the right of it and so running off the roadway, the shoulder stripe was made different from the centerline stripe. The shoulder stripe is 7 feet long with a 33-foot void between dashes. Experience to date discloses no tendency to drive off the road on the right side of the shoulder stripe.

All striping in Arizona is of the beaded reflectorized type. The cost of the broken centerline stripe is approximately $25 a mile. The cost of the two dashed shoulder stripes is about $30 a mile. Flex-O-Lite highway centerline beads are used in many instances.

Comments relative to the nighttime value of the shoulder stripes have been encouraging, especially on curves. The reflectorized stripes serve as two parallel guide lines and tend to increase nighttime effective forward vision. The apparent meeting of the lines ahead of the driver provide an advance target, while the two sets of broken lines help break the monotony of night driving by keeping the driver alert, and awake.

Announcing the Model H/M

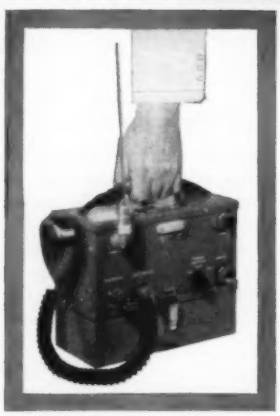
PAK-FONE

2-WAY RADIO

- HAND-CARRIED. EXTREMELY COMPACT.
- BUILT-IN LOUD SPEAKER. CONVENIENT MONITORING.
- RELAY SQUELCH. SILENCE BETWEEN CALLS.
- CONNECTOR FOR POWER SUPPLY. SAVES BATTERIES.
- WITH UPC-100, OPERATES FROM 6, 12, 24 VDC AND 117 VAC.
- ON-OFF INDICATOR LIGHT. AVOIDS RUN-DOWN BATTERIES.
- TOP PERFORMER IN ALL COMPETITIVE TESTS.
- A HEIMARK DESIGN. FCC AND FCDA DESIGNATIONS.

The Model H/M Pak-Fone is being widely accepted by Police and Fire Departments because it does not require holding a handset to the ear. Also, the annoying "rushing" characteristic of other hand carried portables on standby is eliminated by the use of a relay squelch.

Write or wire today for a demonstration in your community or send for literature.



Industrial Radio Universal Power Converter UPC-100

New power supply operates Pak-Fone and other portable 2-way radio equipment from 6, 12, and 24 volt storage batteries or 117 volts A.C.

ir INDUSTRIAL RADIO CORP.

428 N. Parkside Ave. • Chicago 44, Ill. • Phone: AUstin 7-8888

Group Honors Outstanding Local Improvements

SIXTEEN businesses, institutions, and private homeowners in Morristown, N. J., recently received awards for contributing to the cause of community improvement. These awards were the first made by the Morristown Association Dedicated to Improving the Appearance of the Community. The town has a population of about 18,000.

In each case, each recipient received a certificate of merit for special achievements in new buildings or physical improvements. Among the recipients was former Mayor W. Parsons Todd, who was cited for the restoration of a building. A certificate of merit in the institutional, governmental, municipal, and religious class went to a hospital for its nurses' home, which was cited for "its good off-street parking."

Catalogs for You

Write directly to the manufacturers or use Post Card at P. 50

(Continued from page 48)

Easy-to-Use File for Your Blueprints

181 A rack designed specially to accommodate blueprints of various sizes is offered by MOMAR INDUSTRIES, 4323 W. 32nd ST., CHICAGO 3, ILL. Its many desirable features include plan holder clamps able to hold 1 to 100 prints, a visible index that makes set location easy, and an adjustable track that allows for varying thicknesses of sets. The "Glider" is able to hold 12 to 18 sets of blueprints. For further details write to the manufacturer.

Improve Street Lighting with These Standards

182 Revere street lighting poles are made of one-piece tapered octagonal 11-gauge steel, with cast steel fittings for maximum strength. The mast arms are 1½- or 2-inch steel pipe mounted with "Kwiklok" fittings. They are available in 4- to 15-foot lengths for single or double lights. For further information, write REVERE ELECTRIC MFG. CO., 6009-17 BROADWAY, CHICAGO 40, ILL.

Tear Gas Equipment

183 Police can now dislodge barricaded criminals and insane persons with minimum risk by using a Federal Gas Gun and Flite-Rite Projectiles. For dispersing unruly and riotous groups, Spedeheat and Triple-Chaser Grenades, Spedeheat Projectiles and Short Range Shells deliver heavy gas concentrates. Literature and prices on all tear gas equipment may be obtained from FEDERAL LABORATORIES, INC., SALTSBURG, PA.

Selecting the Right Traffic Sign

184 Lyle Signs, Inc., will help your city choose the most effective sign for every traffic problem. Included in the company's line are street-name signs, warning signs, and special signs for school zones and street construction jobs. Write LYLE SIGNS, INC., 2721 UNIVERSITY AVE., S. E., MINNEAPOLIS 14, MINN.

Pointers on Sanitizing New Water Mains

185 All you have to do to sanitize a new water main is fasten HTH tablets to the top of the pipe interior. When the pipe is filled with water, density currents will carry available chlorine to all interior surfaces of the pipe section. The tablets contain about 70% available chlorine—enough to kill bacteria, fungus and algae quickly. Write OLIN MATHIESON CHEMICAL CORP., INDUSTRIAL CHEMICALS DIV., BALTIMORE 3, MD.

Add Rubber for Better Streets

186 For better, longer-wearing streets, add Rubarite to your asphaltic concrete mixture. The efficient rubberizer flows freely, and disperses rapidly in the bitumen. It provides better adhesion, greater ductility and flexibility, and less susceptibility to temperature changes. Rubarite is also ideal for asphaltic seal coats. Another rubberizer, Rubarite Jetlock, may be used in airport surfacing. For a free booklet, *Bitumen Rubberizers*, write RUBARITE, INC., 1702 PHILTOWER BLDG., TULSA, OKLA.

Rebuilds Deteriorated Concrete Tanks and Walls

187 "Gunite" offers a practical and economical way to repair or restore deteriorated concrete tanks, walls, or similar structures. In the "Gunite" process, concrete is sprayed under pressure and becomes an integral part of the structure being repaired. For additional information or free inspection of facilities and recommendations for repairs, write PRESSURE CONCRETE CO., 315 S. COURT ST., FLORENCE, ALA.

Equipment for Pumping and Sewage Treatment

188 How to select and determine the capacities of vertical wet pit pumps and pneumatic ejectors, is fully discussed in *Manual* 1114. The pump section includes a table for rating fixture units, a curve for estimating pump capacity, and a table for determining friction of water in pipes. Ejector data include details on how the ejectors operate, and points in selecting the proper unit. Write YEOMANS BROTHERS CO., 1999 N. RUBY ST., MELROSE PARK, ILL.

Fast Way to Heat Asphalt Paving Tools

189 When paving city streets, keep your asphalt tools ready with a Hauck heater. These efficient units will heat 16 or more tools in minutes, without sparks, smoke or ashes. They are available with a built-in binder cement kettle or with a rack for binder pails. Write THE HAUCK MFG. CO., 111-121 TENTH ST., BROOKLYN 15, N. Y.

Transmitter-Receiver

190 Top performance combined with compact design and the excellence of such built-in features as a loud speaker, relay squelch, power supply connector, and on-off indicator lights, makes the Model H/M Pak-Fone portable 2-way radio widely accepted by police and fire departments. Send for literature to INDUSTRIAL RADIO CORP., 428 N. PARKSIDE AVE., CHICAGO 4, ILL.

Shot-Crete Your Concrete Repairs

191 Make all your concrete repairs pneumatically with the new True Gun-All wet-mix machine. This pneumatic motar gun will put in place up to four cubic yards of concrete per hour. No concrete mixer is needed, and the unit will handle mortar of any moisture content. Write TRUE GUN-ALL EQUIPMENT CORP., MIDSTATES BLDG., TULSA, OKLA.

More Effective Police Cars

192 A new police car, the "Pursuit," has been designed to meet police requirements for pick-up, speed, durability and safety. The "Pursuit" features a super-powered Super Red Ram engine rated up to 230 hp. Body styles include 2-door and 4-door sedans, and 2-door Suburban and 4-door Sierra station wagons. Write DODGE DIVISION, CHRYSLER CORP., 7900 JOS. CAMPEAU AVE., DETROIT, MICH.

Combines Steel-Wheel and Pneumatic Rolling

193 Simplify any street construction job with the Duo-Pactor, a new unit designed to speed compaction, provide higher densities, and maintain grade and surface levels throughout the compaction process. The Duo-Pactor combines two types of compaction in a single unit. It has eight oscillating wheels for pneumatic compaction and a steel roll. These can be used independently or combined. Write SEAMAN-GUNNISON CORP., BARABOO 9, WIS.

there should be **EDDY HYDRANTS** in your future installation plans **because:**

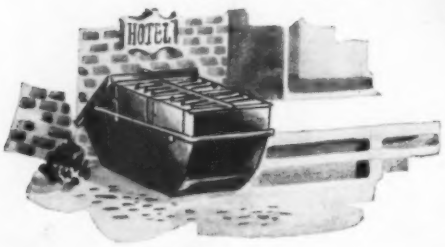
- They are mechanically *right* and simple in design—built to highest standards of craftsmanship—for decades of dependable operation with minimum maintenance.
- Easily serviced by one man, without special tools or heavy rigs.
- Large waterways—open smoothly *with* the pressure and close without water hammer.
- Drip action positively drains standpipe, safeguarding against freeze-ups.
- Available with all types of connections.
- 106 years' successful operation assures availability of repair parts.
- Meet all A.W.W.A. specifications.

Send today for full information on the complete line of Eddy Valves and Hydrants. No obligation.

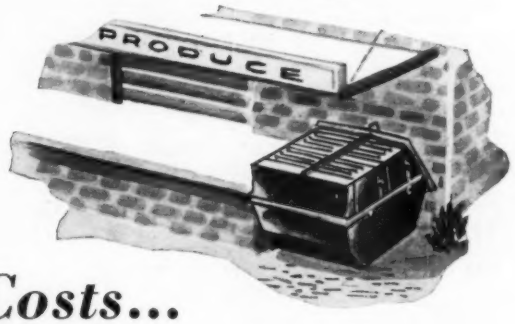
EDDY VALVE COMPANY
A Subsidiary of James B. Clow & Sons
WATERFORD, NEW YORK

SAVES DOLLARS...MAKES SENSE

in handling rubbish and garbage



Load Lugger equipped truck with 14 cubic yard leak-proof, odor-proof, vermin-proof container.



Reduces collection Costs...

One Load Lugger truck and containers does the work of a dozen conventional trucks ... saves manpower ... cuts your equipment investment and your maintenance costs to the bone. For park maintenance and street repair work Load Lugger versatility pays off, too ... and Load Lugger can be used as a flat-bed truck for hauling equipment and materials. Investigate the many advantages of the Load Lugger System for your community ... we'll offer sound recommendations which can save many dollars annually.

LOAD LUGGER®
A BORG-WARNER TRADE MARK

Ingersoll KALAMAZOO DIV.
BORG-WARNER CORPORATION
1878 North Pitcher Street, Kalamazoo, Michigan
Telephone 5-3501

B-W

Purchasing News

Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

World's Largest Automation Parking Operation

The world's largest automation parking operation is a "delight" to the management because it affords "off-street parking at a minimum operating cost."

That's the word from H. S. Strong, manager of Veterans Memorial Auditorium, Des Moines, Iowa, referring to four parking areas, each of which is "manned" by two Western Railroad Supply Company electrically-operated gates.

An autoist desiring entrance to one of the lots merely drives up to a gate and, without getting out of his car, the driver reaches through the window and deposits the required fee into the remote-control box. Immediately, the gate arm rises and allows the car to pass into the lot. Safely in, the gate arm returns to its horizontal position to await the admission of another car.

When major events at the huge auditorium attract capacity crowds, parking attendants handle parking direction and collect parking fees in supplementary adjacent lots. But the automation lots keep right on working alone during the rush period, collecting fees and admitting automobiles. When the attendants have filled their lots, they move over to the automation gates and complete filling them.

Even here, the Auditorium manager sees a saving in that the number of attendants is "materially reduced."

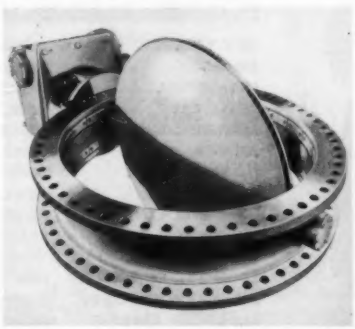
Each of the pay-in, free-out gates incorporates an exclusive WRRS feature—the magnetic detector. It is buried in the ground in the exit driveway. As the exiting car passes over it, the magnetic detector actuates the gate arm, lifts it and allows the car to depart.

The gates to each separate lot tabulate the number of cars entering and leaving, and when the balance equals the lot's capacity, an illuminated "LOT FULL" sign pops on. Another remote control will return coins inserted by any motorist who overlooks or disregards the "LOT FULL" message and tries to get in anyway. He will not be allowed to pass until another car exits to make room for him.

Other cities installing WRRS gates this winter include Sioux Falls and Rapid City, S. Dak.; Medicine Hat and Sarnia, Canada; Mattoon, Ill.; Paterson, N. J.; and Beaufort, S. C.

For full data on these gates, write to WESTERN RAILWAY SUPPLY CO., CHICAGO, ILL., or use the Post Card following Page 50. Circle No. 782.

New Butterfly Valves for Water, Sewage Works



A new series of butterfly valves designed primarily for municipal water supply or disposal systems has been announced by Allis-Chalmers Manufacturing Co. The new valves meet the recently published American Water Works Association's tentative standard specifications for rubber and metal seated butterfly valves, AWWA C504-55T and C505-55T.

Diameters range from 16 to 84 inches in AWWA sizes. Valves with rubber seats in the housing are made for 25 psi and 50 psi ratings. Valves with a rubber seal ring in the disc are made for all pressure ratings. Metal seated valves are made for 25 psi rating and above.

Any of several methods of manual or powered operation can be provided on Allis-Chalmers water works butterfly valves.

A description of the new valves is contained in *Bulletin 02R8287*, copies of which are available on request from ALLIS-CHALMERS MANUFACTURING COMPANY, 1185 S. 70th STREET, MILWAUKEE, WIS., or through use of the Post Card following Page 50. Circle No. 808.

New Distributor Appointments

New distributor appointments have been announced by the Kwik-Mix Company, Port Washington, Wisconsin, manufacturers of concrete, plaster-mortar and bituminous mixers and the Moto-Bug power wheelbarrow with interchangeable attachments. Kwik-Mix is a subsidiary of the Koehring Company of Milwaukee. The appointments include Equipment Repair and Supply Company of 5109 Lake Street, Melrose Park, Ill.; Cactus Equipment Company of 2310 Calhoun Street in Houston, Texas, and the Tom Wood Truck Equipment Co., Inc. of 2233 N.W. First Court, Miami, Florida.

MUNICIPAL OR INDUSTRIAL

IN CITY AFTER CITY

THE FIRST CHOICE IS ROTO-PAC

GIANT CARRIER OR ALLEY CAT, there is a Roto-Pac refuse loader for every municipal and industrial refuse collection job—

- The 16 or 20 cubic yard loader for big loads where you have normal road space to "work" a regular-size unit.

- And the smaller, narrower truck "alley cat" for loading in narrow, more confined space.

ONLY PERFORMANCE ON THE JOB

HAS BUILT ROTO-PAC PRESTIGE AND RECOGNITION!

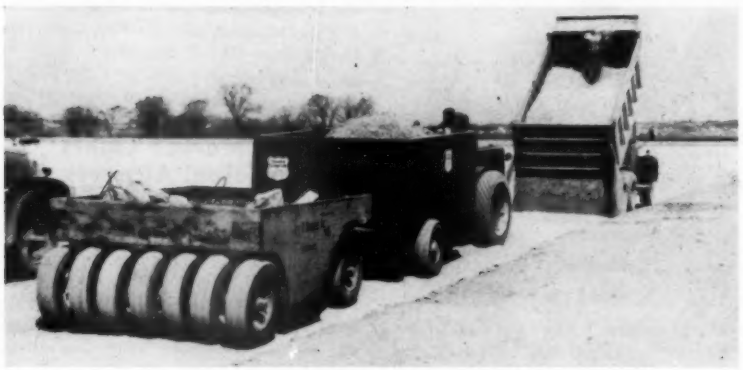
CITY AFTER CITY ... IT'S ROTO-PAC

NEW YORK	BLAISDELL, N. Y.	PARIS, FRANCE
CHICAGO	CHEEKTOWAGA, N. Y.	STAMFORD, CONN.
PHILADELPHIA	EASTON, PA.	PONCE, PUERTO RICO
JERSEY CITY	YORK, PA.	MAYAGUEZ, PUERTO RICO
ROCHESTER, N. Y.	IRVINGTON, N. J.	SANTURCE, PUERTO RICO
ATLANTA, GA.	NEWARK, N. J.	SAN LUIS POTOSI, MEX.
MONTCLAIR, N. J.	DETROIT, MICH.	MT. VERNON, N. Y.
BUFFALO, N. Y.	NEWBURGH, N. Y.	SHARON, PA.
LONG BEACH, N. Y.	HAVERSTRAW, N. Y.	NEWTOWN, MASS.
HUNTINGTON, N. Y.	YONKERS, N. Y.	WHITE PLAINS, N. Y.
YOUNGSTOWN, OHIO	TROY, N. Y.	McKEESPORT, PA.
COLUMBUS, OHIO	NEW BRUNSWICK, N. J.	CAMBRIDGE, MASS.
EAST HARTFORD, CONN.	PAWTUCKET, R. I.	CAMDEN, N. J.
BRIDGEPORT, CONN.	WHITE PLAINS, N. Y.	CARBONDALE, PA.
NEW HAVEN, CONN.	TONAWANDA, N. Y.	MANCHESTER, N. H.
EVERETT, MASS.	SAN JUAN, PUERTO RICO	

SALES AND SERVICE IN ALL PRINCIPAL CITIES

CITY TANK CORP.
53-09 97th PLACE • CORONA 68, N.Y.

One Pass Compaction With Rubber or Steel



Tractive power plus was proved by one contractor working a Seaman-Gunnison DUO-PACTOR here at his Mitchell Field Airport job in Milwaukee, Wis., in towing a pull-type pneumatic-tired roller, thus practically completing compaction in one pass. The power torque amplifier feature, on the International Model "300" Utility tractor, allows nonstop full-power turnarounds by reducing speed plus increasing draw bar pull by over 45%.

This method of soil consolidation is provided by the DUO-PACTOR, from soil compaction to surface treatment. Sand or chips are pressed down to provide a permanent seal coat.

The DUO-PACTOR mounts both pneumatic-tired and steel rolls. By rolling alternately with steel and rubber, a higher density is produced than is possible with either one or the other separately.

The steel roll mounts in front of the pneumatic-tired rear gang roll, which consists of eight spring-mounted wheels. Both rolls are controlled hydraulically.

The DUO-PACTOR is manufactured by SEAMAN-GUNNISON CORPORATION, 2763 S. 27th ST., MILWAUKEE, WISCONSIN. For full details, write directly to the company or use the Post Card located for your convenience following Page 50. Circle No. 812.

FWD Appoints New Service Distributors

FOUR WHEEL DRIVE AUTO COMPANY has added five new sales, parts, and service distributors to its field organization, it was announced by G. F. DeCoursin, FWD vice president.

The new dealers handling FWD's custom-engineered four- and six-wheel-drive heavy-duty trucks are Choate Equipment Company, Cedar Rapids, Iowa; Gulf Coast Truck Equipment Company, 7424 Avenue N, Houston, Texas; Pashkow Motors, 82 Pleasant Street, Monticello, N. Y.; Wakeman Corporation, 1320 New Tampa Highway, Lakeland, Fla., and Standard Equipment & Supply Company, Sixth and Palm Sts., North Little Rock, Arkansas. Main offices of FWD are located in Clintonville, Wis.

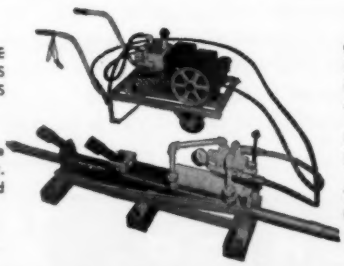
NEW—*Giant Hydraulic Pipe Pushers*—TWO SIZES

MODEL PH-2

CAPACITY ½" TO 1¼" PIPE
FRAME LENGTH 41 INCHES
FRAME WIDTH 13 INCHES
APPROX. WT. 150 LBS.

A Simple Push or Pull of the Valve Puts Machine to Work. Eliminates All the Hard Work.

WRITE FOR PRICES



MODEL PH-3

CAPACITY ¾" TO 2" PIPE
FRAME LENGTH 47 INCHES
FRAME WIDTH 15 INCHES
APPROX. WT. 190 LBS.

Install Over 100 Ft. of Two Inch Pipe Per Hour.

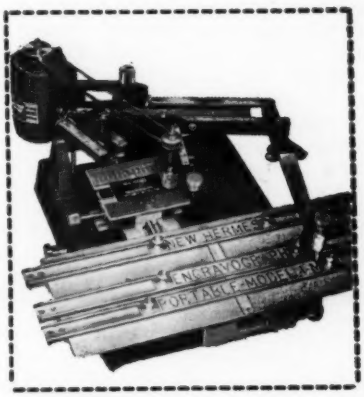
Tested Under Operating Conditions.

WRITE FOR PARTICULARS.

GIANT MANUFACTURING CO. Council Bluffs, Iowa

engrave your own signs

MARKERS
NAMEPLATES
right on the premises



Portable machine, so simple to operate by anyone

- Make permanent attractive signs at less cost.
- Engraves on plastics, wood or metals.
- Tested and approved by City Departments.

For complete information write Dept. 87

NEW HERMES
ENGRAVING MACHINE CORPORATION
13-19 University Place • New York 3, N. Y.

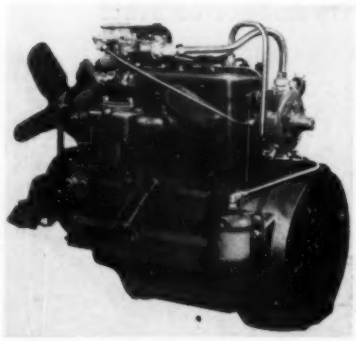
'Jeep' Industrial Engines Can Use LPG or Natural Gas

LPG (liquid petroleum gas) and natural gas conversions of 'Jeep' L-Head and F-Head industrial engines are now available as optional equipment, according to John W. Dunbar, sales manager of Willys Motors, Inc., Industrial Engine Department, Toledo, Ohio.

The advantages of the LPG or natural gas conversions, maintain Willys spokesmen, lie in their high octane at low cost. Since LPG is a by-product in the manufacture of gasoline, it is available in virtually unlimited quantities; yet at present, only a small portion of LPG is being put to commercial use.

Though the cost of LPG is low, proponents point out that it has an octane rating of well over 100, in comparison with 80-plus for good premium gasoline.

Other advantages of utilizing LPG for



industrial engine power are said to include the prolonged use of lubricating oil without danger of thinning; the substantial reduction of carbon deposits; the less frequent need for maintenance and the longer life of the engines due to the fact that lubrication of moving parts from the crankcase reaches a high degree of efficiency.

Natural gas, with clean burning characteristics like the LPG, is also recognized as a reliable, low cost fuel in some parts of the country.

Inquiries regarding 'Jeep' Industrial engine LPG or natural gas conversions may be directed to WILLYS MOTORS, INC., INDUSTRIAL ENGINE DEPT., TOLEDO, OHIO. For convenience, use the Post Card following Page 50. Circle 788.

Runway Marker Lights for Municipal Airports

A new high-intensity runway marker light was recently introduced by the CROUSE-HINDS CO., WOLF & SEVENTH NORTH ST., SYRACUSE, N. Y. Its bidirectional beams can be aimed or brightened by remote control to meet any kind of weather conditions along an instrument landing runway.

By means of a control panel (Type CPT) located in the control tower of your municipal airport, tower operators can handle a whole system of the new runway marker lights by switching them off and on, raising or lowering their brightness and aiming them in accordance with the control panel's indicator scale which is calibrated in degrees of weather visibility.

The new HRC runway marker's 500-watt lamp is attached to a movable sup-

PROGRESSIVE CITIES SELECT

F&E INCINERATOR STOKERS

Designed and manufactured by a century-old concern with 40 years' experience in designing, engineering and completely manufacturing hydraulically-powered stokers.

"F&E" Hydraulically-Powered Stokers are the most talked-of incinerator advancement in the field today.

Should you wish to see an "F&E" Incinerator Stoker in operation and get firsthand information on their revolutionary performance, we will be pleased to advise where the installation nearest you is located.

F&E

FLYNN & EMRICH CO.

301 NORTH HOLLIDAY STREET • BALTIMORE 2, MARYLAND

port driven by a thermal-actuated mechanism. Varying the current passing through this mechanism varies the beam brightness. In bad weather, the beam pattern can be concentrated on the center of the runway where pilots need it. This change in beam pattern occurs when the brightness of the lights is increased and the thermal spring device refocuses the bulb.

For a detailed description of this new feature, write directly to the manufacturer or you may use the Post Card on the insert following Page 50. Circle No. 796.

Filters for Smaller Swimming Pools

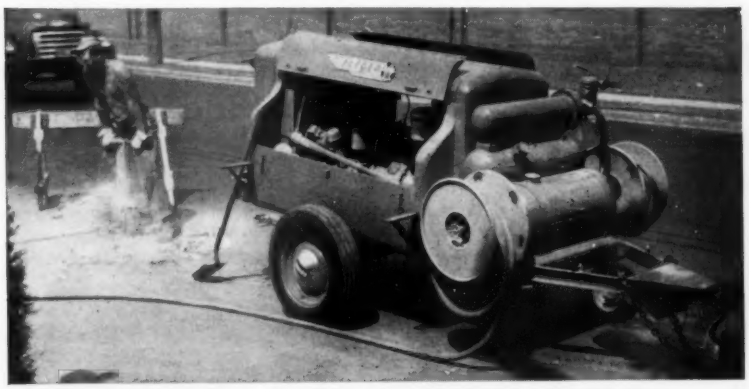
New 6- and 12-square-foot diatomite water filters especially designed for smaller municipal swimming pools like those found in residential areas, are offered by Separmatic, Inc., a subsidiary of the Badger Meter Mfg. Co. The new Model JR filters are furnished as complete "packages," ready for immediate installation. In addition to the filter, there is a pump and 110-volt, single-phase motor; a pre-coat and shot-feeder system; and a hair and lint strainer. These units require only two service connections—to and from the pool.

With flow rates ranging from two to three gpm per square foot, the six-square-foot units effectively filter pools with capacities up to 25,000 gallons. The 12-square-foot units filter pools up to 45,000 gallons. For larger municipal swimming pools and city waterworks, Separmatic offers diatomite filters up to 256 square feet.

For quickly and conveniently determining the size filter required by your municipal pool, send for a Separmatic Nomograph, available free from SEPARMATIC, INC., 3142 WEST MILL RD., MILWAUKEE, WIS. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 828.

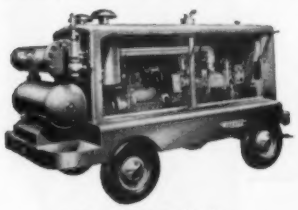
Steel Plate Fabricating Plant

A steel plate fabricating plant will be built at New Castle, Delaware, by Chicago Bridge & Iron Company, 322 S. Michigan Ave., Chicago, Illinois. The plant will supplement the activities of the firm's plant in Greenville, Pennsylvania, in serving the Middle-Atlantic Seaboard.



Note full size tool boxes, retractable dolly, spring towing eye.

Work moves faster with a Jaeger Rotary



Other sizes to 600 cfm

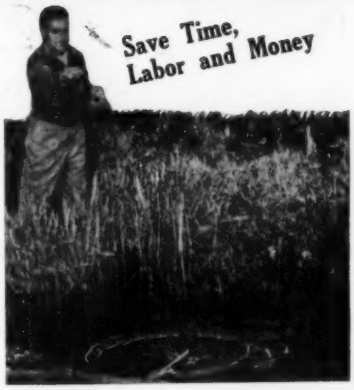
At slower operating speeds than other rotaries (less fuel, less wear) the Jaeger "125" gives your crews constant 100 lbs. pressure for all demands up to 125 cfm. Keeps full wallop in two 80 lb. breakers. Ask your Jaeger distributor to show you how quietly and evenly it runs — or send for Catalog JCR5.

THE JAEGER MACHINE COMPANY • 505 Dublin Ave., Columbus 16, Ohio

PUMPS • MIXERS • TRUCK MIXERS • SPREADERS, FINISHERS • LOADERS

KILL MOSQUITO LARVAE 20 TIMES FASTER WITH TOSSITS

Reg. U.S. Pat. Off.



NO SPECIES IMMUNE!

New Formula Including DDT and BHC Gives 100% Kill In All Breeding Places—SWAMPS • CANALS • CATCH BASINS RAIN POOLS • DITCHES

You simply toss in infested water . . . capsule dissolves and the solution spreads rapidly in all directions forming a film of larvae-killing insecticides over the surface of the water. One Tossit will larvacide 1,000 square feet of water surface.

YOU CANNOT OVERESTIMATE THE EFFECTIVENESS OF TIME-TESTED, CLEAN, SAFE AND EASY-TO-HANDLE TOSSITS . . . ESPECIALLY IN HARD-TO-REACH BREEDING AREAS!

- Tossits make it possible to larvacide areas inaccessible to power spraying equipment . . . and areas hard to reach with hand spraying equipment.
- Tossits permit wider distribution of Field Men with consequent savings of valuable time. One competent man can carry several hundred Tossits, make his own inspections and do the larvaciding work of five men with hand equipment.
- In a matter of minutes, one man with 50 Tossits can larvacide an acre of dense breeding ground . . . or 50 isolated rain pools . . . at an average cost of $1.50.

In Every Instance . . . TOSSITS ARE CHEAPER—MORE EFFECTIVE THAN HAND SPRAYING

Write Today for Leaflet and Special Price List for Cities, Counties and States

WYCO, INC.
5200 S. Dixie Highway
West Palm Beach, Fla.

New Medium-Duty Tractor Line

The M-H-F WORK BULL, Model 303, one of the units in the new line of tractors, speeds materials-handling jobs commonly required in municipal yards.

A new line of five light and medium-duty wheel tractors and allied equipment has been introduced by the new Industrial Division of Massey-Harris-Ferguson, Inc. These have been designed to fill the gap between light and heavy equipment and are well adapted to general municipal use.

Included in the new M-H-F Work Bull line are tractors ranging in horsepower from 34 to 52, and more than 20 attachments which, teamed with the tractors, provide job-matched tools for such operations as digging, loading, lifting, dozing, trenching, grading, material-handling, and mowing.

Mid-Western Industries, Inc., manufacturers of the Davis line of front and rear-end attachments for industrial tractors, has developed and will supply a special line of equipment for the Work Bulls. These attachments will complement those engineered by M-H-F.

For further information, write to the INDUSTRIAL DIVISION, MASSEY - HARRIS-FERGUSON, INC., 1721 PACKARD AVE., RACINE, WIS., or use the Post Card following Page 50. Circle No. 821.

Introduces New Butterfly Valve

The F. B. Leopold Co., Pittsburgh, Pa., has added Leopold rubber-seated butterfly valves to its line of water purification and filter plant equipment.

In the Leopold design, the valve seat is of resilient neoprene rubber or pure gum rubber, vulcanized around a continuous steel ring insert. There is no break in this steel ring, thus eliminating any abnormal wearing. In addition, this feature increases the firmness of the valve seat for longer life and provides rigidity for easier installation.

The disc is edge coated with stainless steel, monel or other specified alloys and then finely machined to a smooth beveled edge. To prevent disc overtravel, the unit is equipped with mechanical stops for manual operation. For automatic operation, the stops are incorporated in the operator itself. A single retaining ring is provided to hold the valve seat

New York's
International Airport
at Idlewild
relies on UNITED
Waste Receptacles!
PUSH
...world's largest manufacturer of metal waste receptacles
UNITED METAL CABINET CORPORATION
14th & Laurel Sts., Pottsville, Pa.
West Coast Distributor: SHORE-CALNEVAR, INC., 2881 East Pico Blvd., Los Angeles, Calif.
WRITE FOR FREE DESCRIPTIVE LITERATURE

firmly in place in the center section of the valve body.

Leopold rubber-seated butterfly valves are made in sizes 6 to 72 inches, of any desired metal, to conform to AWWA specifications and to meet a wide range of operating requirements. They are

furnished with manual or automatic operators, with or without flanges, are economical to install and easy to work, provide positive drop-tight shut-off, require a minimum of care and are ideal for operation in throttled position.

For descriptive literature on this new valve, write F. B. LEOPOLD CO., INC., 2413 W. CARSON STREET, PITTSBURGH, PA., or use the Post Card following Page 50. Circle No. 806.

New Dual Action Bulldozer

A "Dual-Action" dozer for the new International - Harvester IHC-300 utility tractor has recently been announced by the Arps Corporation of New Holstein, Wisconsin. The unit is called "Dual-Action" because of the double-acting hydraulic cylinder on the blade. In combination with the I-H Hydra-Touch control valve, this hydraulic cylinder will afford enough positive hydraulic down-pressure on the blade to afford penetration in hard and partially frozen soils.

By using the Arps blade, the IHC-300 can be used on a large variety of jobs, including removing topsoil and backfilling, grading, bulldozing, snow plowing and even shallow excavations. When

To enforce this...

you need CYCLONE FENCE!

Timid deer could be very easily disturbed by teasing children and boisterous adults, especially if they come too close. That's why a strong, sturdy Cyclone Fence makes such an excellent enclosure for the deer park. Cyclone's open Chain Link Fabric permits a clear view of the animals. Its smooth finish leaves no sharp points to injure deer's coats.

Because Cyclone Fence is a quality product, it is a worthwhile investment that pays off in years of trouble-free, maintenance-free service. Cyclone gives full value for your dollar. Nothing but brand-new, top-quality material is used throughout. Posts and top rails are heavy and rigid. Gates won't drag. Every part of Cyclone Fence is heavily galvanized to offer greater resistance to rust and corrosion. The Chain Link Fabric and barbed wire are galvanized after weaving, leaving no bare spots.

If you are planning a new municipal fencing project, get in touch with a Cyclone Sales Office. Our trained technicians will be glad to discuss your problems without any obligation on your part.

Encourage visitors and local citizens to keep your park clean. Large trash receptacles – like those made by Cyclone Fence—prominently located, will promote neatness, will cut down on your maintenance expense. Help keep America beautiful!

NO JOB IS TOO LARGE—NO JOB IS TOO SMALL FOR CYCLONE*

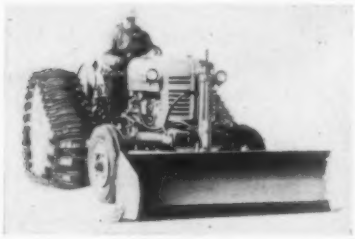
CYCLONE FENCE DEPARTMENT, AMERICAN STEEL & WIRE DIVISION
UNITED STATES STEEL CORPORATION
WAUKEGAN, ILLINOIS • SALES OFFICES COAST-TO-COAST
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Only United States Steel Corporation manufactures Cyclone Fence. Accept No Substitute.

USS CYCLONE FENCE
UNITED STATES STEEL

also equipped with Arps half-tracks, the tractor has enough added crawler traction and power to handle rough dozing, plowing and filling operations.

The blade has five angular adjustments so that it may serve either as a bull-



dozer or as an angledozer. In addition, it has three adjustments for the cutting pitch.

A gauge attached to the ram tells the operator where the cutting edge is in respect to the wheel level. The blade raises 18 inches off the ground to prevent "hanging up" when traveling through ditches, down steep banks, over curbs and other obstructions.

The blade is furnished in a 6-foot length. In operation, it has no effect on the rear-end linkage of the tractor, which means that other attachments, such as a utility blade or trencher, can be used at the same time.

Further information on this "Dual-Action" dozer blade may be obtained from the ARPS CORPORATION, NEW HOLSTEIN, WIS., or by using the Post Card following Page 50. Circle No. 804.

Jumbo Barricade Unit

With the introduction of the new Heavy Duty Jumbo Barricade Unit, Interstate Rubber Products Corp., Los Angeles, Calif., originators of Trafficones, now offers a total of eight items in its full traffic-system line.

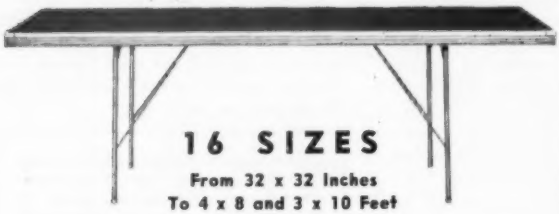
The new Jumbo Barricade Unit consists of two entirely new components, a 24-inch square Jumbo Base and a 36-inch Jumbo Adapter Sign, combined with the standard 28-inch Barricade Cone. The Jumbo Base slips over and interlocks with the Barricade Cone to make an integrated unit. Two such Base-Cone units support the new 36-inch Jumbo Adapter sign, creating a maximum barricade easily seen by motorists.

A single Jumbo Base and Barricade Cone can also be used with a 12-inch Pilot Adapter Sign in windy areas. High stability factor of the 9-pound Jumbo Base allows the Base-Cone unit to with-

stand wind velocities up to 60 mph.

Hub of Interstate's Traffic Control System is the Trafficone, a resilient rubber cone-shape with square base, available in 12, 18, and 28-inch heights and used to establish temporary lanes to guide, direct or control all types of vehicular traffic. To create an emergency barricade, the 28-inch Barricade Cone can be set around construction or repair work such as excavations or asphalt pav-

ELECTION BOARD FOLDING TABLES



16 SIZES
From 32 x 32 Inches
To 4 x 8 and 3 x 10 Feet

MONROE FOLDING TABLES are especially adaptable for election boards as well as many other municipal, county and state departments.

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- Lightweight but will support a ton or more.
- Also Folding Steel Chairs and Trucks for tables and chairs.

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"Electronic Witch" M-SCOPE Pipe Finder

Try Fisher's new "Electronic Witch" M-SCOPE for 10 days — FREE —!

Test this new pipe and cable finder under YOUR actual working conditions. This advanced instrument outperforms any pipe locator on the market regardless of price or design!

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Geophysical Instruments Since 1932

ing. With walls moulded in double thickness the Barricade Cone provides full support for Pilot Adapter Signs, Flag Adapter or Jumbo Adapter or Jumbo Adapter Signs to replace bulky outmoded wooden barricades. Additional height gives warning to motorists at greater distance.

Included in the Trafficone System is the 18-inch Channel Cone extensively used by painting crews for crosswalk and centerline stripping. The 12-inch Line Guard, ideally suited to open highway use is specifically designed for use by line stripping crews. Its flexible construction causes it to remain upright when dropped into position.

For free illustrated literature write to INTERSTATE RUBBER PRODUCTS CORP., DEPT. R1, 908 AVILA ST., LOS ANGELES 12, CALIF., or use the Post Card following page 50. Circle No. 822.

Model HH Payloader Wins

The sixth annual Industrial Design Institute award has just been presented to Jon W. Hauser, St. Charles, Illinois, for his design work on the Model HH "PAYLOADER" tractor-shovel, manufactured by The Frank G. Hough Co., Libertyville, Illinois. This is the first time that a piece of equipment of this type has ever been selected for design honors.

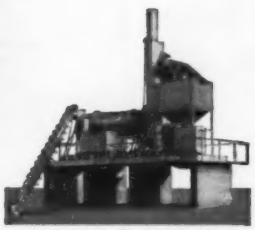
The Model HH "Payloader" is one of three new pneumatic-tired, four-wheel-

drive tractor-shovels introduced in 1955 by The Frank G. Hough Co., all of which are similar in appearance but varying in size and capacity.

This company developed the original four-wheel-drive front-end loader in 1945. These units found rapid acceptance in the construction and public works fields.

Details on the prize-winning Payloader can be obtained directly from the company or by using the Post Card following Page 50. Circle No. 789.

White



Stationary Plants L-12 and L-25, 15-30 ton capacity.

PORTABLE ASPHALT PLANT

MODEL L-8, 10-15 TON CAPACITY

A *COMPLETE* ASPHALT PLANT ON ONE CHASSIS . . . DRYER, MIXER, HEATING KETTLE. Low in cost, small enough to tow, BIG enough to produce HOT mix, (or any other bituminous mix) for driveways, parking lots, street maintenance, etc. Equipped with 50 HP LeRoi engine, air operated gates for *one* man control, divided compartment, reciprocating feeder for proportioning aggregate. Available as stationary plant with 30 HP electric motor.

Write for catalog and name of nearest dealer.

White MANUFACTURING COMPANY

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gives you the facts on

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OUTBOARD POWER

for

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TODAY there's a *new kind* of outboard power for work boat duty! A complete line of new Evinrude *Aquasonic* models so advanced in capability, stamina, and smooth, quiet operation that they set entirely new standards of performance. Get the facts! Send coupon for booklet.

EVINRUDE MOTORS
Division of Outboard, Marine & Mfg. Co.
4626 N. 27th Street, Milwaukee 16, Wisconsin

Send me booklet on outboard power for work boat duty.

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Address.....

City.....Zone...State.....

(In Canada: Mfd. by Evinrude Motors of Canada, Peterborough)

New ¾-Yard Clamshell Bucket

A new ¾-yd. clamshell-type material handling bucket, for use with the truck-mounted, all-hydraulic H-5 Hydrocrane, has been developed by Bucyrus-Erie Company, South Milwaukee, Wis. Designed for handling coal, sand, gravel, and other bulk materials, it operates faster than conventional cable-operated buckets because foot-controlled selector valves enable the operator to channel all of the machine's available horsepower into the digging action.

With two double-acting hydraulic rams forcing the bucket bowls closed, the manufacturer claims penetration is better and payloads are bigger because the bucket digs in with its full weight. No digging effort is lost through the hoisting action required to close cable-operated buckets.

Bowls of this bucket are interchangeable with those of the ½-yard digging bucket, providing two different units for little more than the cost of one. To assist in picking up loose material and for light digging service, a set of five high-carbon forged teeth can be furnished as extra equipment.

To speed bucket changes, the tagline hose connection is equipped with a quick-disconnect coupling. The bucket can be quickly and easily attached or detached in a few seconds without the use of tools and without any oil spillage.

For more information, write to BUCYRUS-ERIE COMPANY, PUBLICITY DEPARTMENT, SOUTH MILWAUKEE, WIS., or use the Post Card following Page 50. Circle No. 783.

Remote Control Unit Protects Gas Distribution Systems

Added safety and improved service for city gas distribution systems are offered by a new electrically operated pilot regulator remote control system just introduced by the Rockwell Manufacturing Co.

Designed for use in intermediate and high pressure pilot-loaded distribution circuits, the new system enables an operator at a central control station to raise or lower the pressure setting on pressure regulators 10 to 15 miles away. By using a telemetering arrangement to spot pressure changes, he can rectify immediately any undesirable pressures at circuit outlets.

Dubbed the "Telapilot," the new sys-

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

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PROMPT SHIPMENT

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NORTHERN GRAVEL COMPANY
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Are WATER RATES a Problem in Your City?

YOU can find out what other cities are charging for water by purchasing "Modern Water Rates," just published by THE AMERICAN CITY.

It provides data on rates used in 130 separate water systems selected from 23 states and covering cities ranging in size from Chicago, Illinois, to Alto, Texas (population 1,007). Of the rates selected, about 12% are used by private water companies and the balance are from public systems of some type.

"Modern Water Rates" can be helpful to you in making recommendations on rate adjustments in your municipality. Order your copy today. You can save $.50 by sending cash, check or postal money order (pay to the order of THE AMERICAN CITY) with the coupon.

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Yes, please send me by return mail.....copies of your "Modern Water Rates" at:

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.....$3.00 per copy. Please send bill. ... ...

Name: .....

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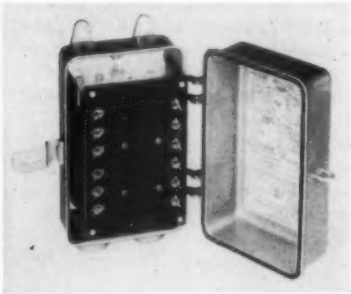
Address: .....

tem consists of a control panel assembly connected via telephone wires with a regulator station assembly. The latter assembly includes cabinet, reversible electric motor, gear box, two hermetically sealed relays, and two limit switches. The switches keep the pressure within adjustable limits.

For further information, contact the ROCKWELL MANUFACTURING COMPANY, PITTSBURGH, PA., or use the Post Card following Page 50. Circle No. 786.

New Controller for Water and Sewage Plants



Photoswitch Division, Electronics Corporation of America, Cambridge, Massachusetts, announces a new electromagnetic level control—Type 10CB4. It is particularly adaptable for use in the control of all electrically conductive liquids, waterworks, and sewage fields.

Type 10CB4, used with Photoswitch probe-type fittings, provides maintenance-free operation with complete flexibility of application. There are no moving parts in the tank and no floats or stuffing boxes to wear or fail in operation. In a single control, four different ranges of resistivity of the probe circuit are provided to match the conductivity of the liquid being controlled. Type 10CB4 can be used for single level indication or alarm, or pump-up or pump-down control.

The control operates on 115-230 volts, 25-60 cycles AC. Extremely low voltage is employed in the probe circuit which assures complete safety and eliminates the problem of electrolysis. The control relay is rated at 10 amp at 115 v, 5 amp at 230 v, and is designed for motor starter, or motorized or solenoid valve operation.

For further information, ask for *Bulletin PF 544a.* Address inquiries to PHOTOSWITCH DIVISION, ELECTRONICS CORPORATION OF AMERICA, 77 BROADWAY, CAMBRIDGE 42, MASS., or use the Post Card on insert following Page 50. Circle No. 801.

THE NEW
Revere
ELECTRIC MFG. CO. CHICAGO U.S.A.
ENDOVAL
STREET LIGHTING LUMINAIRE
with Unique Reversible Slip Fitter Providing
Both 10° Tilt and Horizontal Mounting
Revere
HORIZONTAL
10° TILT
Actually Two Luminaires in One!
Smoother — Lighter — Stronger
Sturdier Housing of precision
Die-Cast Aluminum Alloy
• LEVELING BOSSES PROVIDE ACCURACY IN LIGHT CONTROL
• W-MODIFIED PARABOLIC REFLECTOR DESIGN PROVIDES MORE UNIFORM LIGHT DISTRIBUTION AND HIGHER EFFICIENCY.
• VERTICAL DISTRIBUTION WITHOUT USE OF LIGHT ABSORBING PRISMS
• PRECISION DIE-CASTING ALWAYS ASSURES THE RETURN OF REFLECTOR AND GLASSWARE TO ACCURATE POSITIONING
• INTEGRALLY CAST LIFT-OFF TYPE HINGE ALLOWS EASY REMOVAL OF GLASS
• UNIFORM SEATING OF GLASS AND POSITIVE LATCHING SEALS OUT BUGS, DIRT OR BLOWING RAIN
This is a great contribution eliminating need of stocking two Luminaires — No extra parts.
The New Revere "Endoval" Luminaire is a completely re-engineered unit embodying every advanced feature to achieve best results in Mercury Lighting. Quick and Easy to install and service—No entrapped light . . . easily changed type distribution. Designed for use on all roadways where high levels of glare-free illumination are required using the highly efficient 11,000 and 21,000 lumen Mercury lamps. Available with either IES Type II or Type III Distribution for 1¼ or 2 in. Slip Fitter mounting. Also, for Mercury Store Front Lighting.
Write for new descriptive Brochure 700-9 today!
REVERE ELECTRIC MFG. CO. • 6009-17 BROADWAY • CHICAGO 40, ILL.
Available in Canada thru Curtis Lighting, Ltd., Leaside, Toronto, Ontario
THE ONLY COMPLETE LINE OF LUMINAIRES - FLOODLIGHTS AND POLES FOR STREET - SPORT - AIRPORT - SERVICE STATION - OUTDOOR THEATRE - MARINE AND INDUSTRIAL LIGHTING

Versatile

"GUNITE"

FOR
REPAIRS TO
SEWAGE DISPOSAL
PLANT

Before

After

The existing concrete on this sewage disposal plant in western New York had deteriorated to an alarming extent and necessitated the rebuilding of practically the entire plant above ground. The pictures above are evidence that "Gunite" repair is not only practical but that it resulted in complete restoration of the plant.

On job after job, "Gunite" proves its worth. Our engineers will inspect your facilities and make recommendations for repairs without obligation on your part.

Engineers: For detailed information on "Gunite" the versatile repair material for all types of concrete structures, send for our 48 page bulletin. Pease use the coupon. Mail to

PRESSURE CONCRETE CO.

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MAIL TODAY AC

Purchasing News

Solid Comfort for Life Guard

A new, modern design in guard chair towers suitable for municipal swimming pools, was announced recently by SWIMQUIP, INC., 3301 GILMAN RD., EL MONTE, CALIFORNIA; also 1040 Huff Rd. NW., Atlanta, Georgia. The new guard chair has three-point mountings of 3-inch tubular steel plus two high polished chrome plated brass hand rails; Sure-Tread platform surface; durable moulded Fiberglas contour seat which is resistant to sun, water and abuse, and it is 7 foot-1 inch high over-all.

Illustrated literature and prices on the life-guard chair will be supplied by the company directly, or by use of the Post Card following Page 50. Circle No. 813.

Bead Dispenser Free With 2,000-lb. Purchase

You may have — absolutely free — a positive action, precision-built, Flex-O-Lite bead dispenser with the purchase of a minimum order of 2,000 pounds of "Free Flow" reflective glass beads!

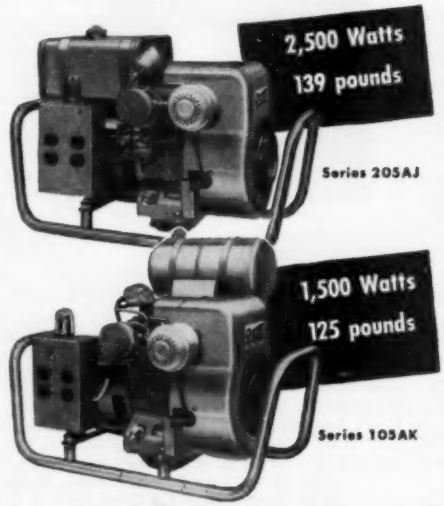
The new Flex-O-Lite "Free Flowing" Bead Dispenser works equally well with standard-type "A" beads, "Free Flow" beads or moisture resistant-type "C" beads. It is of rugged cast aluminum construction with 4-inch wide dispenser, completely automatic or may be operated manually.

Flex-O-Lite is suitable for attachment

YOU GET *4-cycle* DEPENDABILITY

AND *Light weight* TOO . . . IN AN

ONAN Electric Plant



These power-packed electric plants give you all the *4-cycle* advantages of quick starting, long life and trouble-free operation . . . with an amazing weight saving over usual 4-cycle plants. You can carry them easily to any spot . . . and you can count on them delivering their full rated capacity as long as you need it. Both are single-cylinder, air-cooled . . . completely equipped and ready to go.

Other models to 50,000 watts.

Write for special folder on lightweight models!

D. W. ONAN & SONS INC.

Onan ELECTRIC PLANTS

2560 University Ave. S. E., Minneapolis 14, Minnesota

to any traffic line paint machine and dispenses beads in any quantity at any given speed. It is available at a price within reach of all.

For complete descriptive information, write to FLEX-O-LITE MFG. CORP., 8301 FLEX-O-LITE DRIVE, P. O. BOX 3066 (AFFTON BR.), ST. LOUIS, MO., or you may use the Post Card on the insert following Page 50. Circle No. 818.

New, Front-Mounted Sweeper

LITTLE GIANT PRODUCTS, INC., PEORIA, ILLINOIS, has now introduced a new front-mounted sweeper, Model FM-C, for use with almost any tractor, truck or similar prime mover.

It is driven by an 8-hp, air-cooled, independent gasoline engine, and does not

require power take-off. This has made possible a reduction in cost over P.T.O. front-mounted sweepers.

Speed of rotation of the FM-C brush is constant, controlled by governor settings, and is entirely independent of the speed of the prime mover. The independent action of the brush allows the prime mover to be slowed down for heavy accumulations of dirt, sand, or snow, while the brush maintains its correct speed for sweeping.

The brush has a simple adjustment for wear, angles 30 degrees right or left, and tilts at either end. Ground pressure is adjusted by chain supports. The engine is rigidly mounted on the brush frame and turns when the frame is angled. Height of the FM-C Sweeper is 51 inches, diameter of the brush is 31 inches, and brushes can be obtained in six, seven, or eight-foot lengths. The standard brush is of tough, wear-resistant Palmyra fibre and bristles are replaceable.

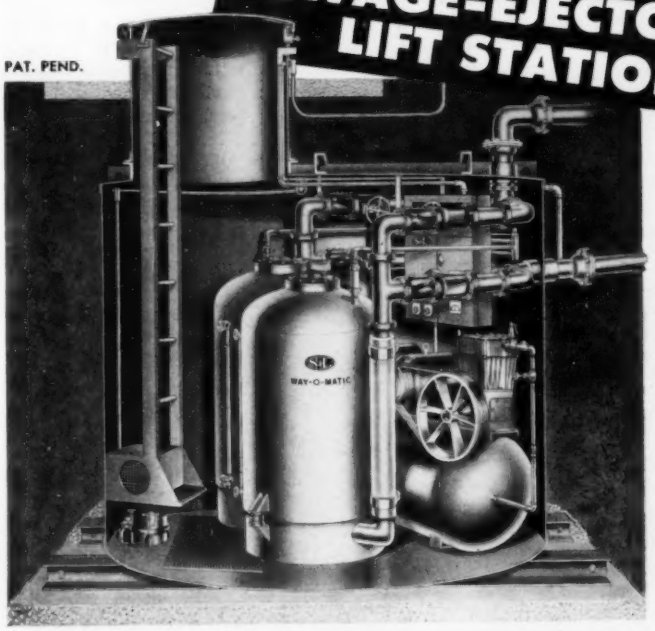
Optional equipment for the sweeper, available from Little Giant, includes dust-arresting water sprinkling system, mounting plate, hand-actuated hydraulic pump, parking stand, front deflector and steel bristle broom.

For further information, write the company directly, or you may use the Post Card on the insert following Page 50. Circle No. 814.

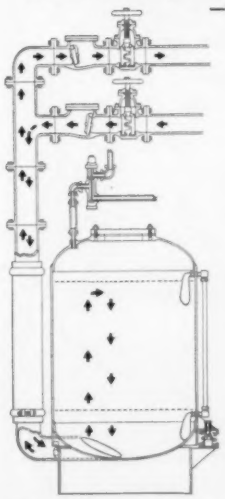
THE QUICKEST WAY TO THE RIGHT ANSWER—

Specify... The Smith & Loveless "WAY-O-MATIC" SEWAGE-EJECTOR LIFT STATION

PAT. PEND.



Factory-built by the makers of the widely used Smith & Loveless Factory-Built Pump Station, The "Way-O-Matic" pneumatic Sewage Ejector Station is ideally suited for the smaller applications—100 G.P.M. or less —where no satisfactory sewage pump is available.



Only the "Way-O-Matic" eliminates floats and electrodes—by "weighing" sewage receiver and contents. No control parts touch the sewage.

FACTORY-BUILT QUALITY WITH SAVINGS
NO FLOAT ROD TO BIND
NO STUFFING BOX TO LEAK
NO ELECTRODES TO FOUL OR SPARK
NO MESSY MAINTENANCE

- An integrated design, each piece proven by the test of time.
- Precision assembled by factory experts.
- Automatic dehumidifier to eliminate condensation.
- Prewired with a color coded central electrical control cabinet.
- Factory tested and adjusted by actual operation before shipment.
- Easily and quickly installed.
- Especially designed for minimum maintenance.

For Job Recommendations, Complete Specifications, and Drawings—all part of the latest edition of the 100 page Smith & Loveless lift station Data Manual

WRITE DEPARTMENT 10

S&L Smith & Loveless, Inc.
P. O. BOX 8172 KANSAS CITY, MISSOURI
Manufacturing Plant • Merriam, Kansas

REPRESENTATIVES IN PRINCIPAL CITIES

Gas Appliance Tester Eliminates Guesswork

This inexpensive, versatile instrument has been designed to assist service men in checking and testing thermocouples, magnetic valves, and thermostats as used on gas appliances.

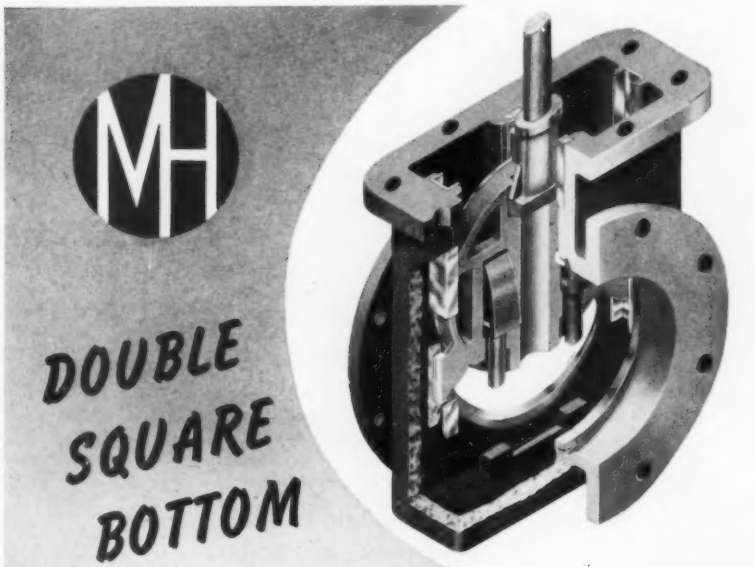
Elimination of guesswork in the servicing of these appliances is assured by the ability of the G-6 to read the millivolt output of thermocouples and pilot generator sets from 0 to 1,000 millivolts. It can be used as a millivolt "driver" or generator to replace the thermocouple and thereby test the electromagnets for "pull-in" and "dropout" points. It can be used as a continuity checker to find opens, shorts, or faulty connections in wiring systems. Finally, it has a light indicator circuit and jacks for reading both line voltage (110-120 VAC) and 24 volts AC for that type of system.

Controls include output jacks for both AC and millivolt ranges, a master on-off selector switch which makes the unit

read millivolts one way and generate millivolts in the other position, a range switch with 0 to 100 and 0 to 1,000 millivolt positions, and a low resistance potentiometer permitting continuously variable adjustment from zero to 1,000 millivolts.

The unit is housed in a deep drawn aluminum case measuring 4 inches x 7 inches x 3 inches and is powered by a single flashlight cell, clip-mounted below the face panel. The unit comes complete, ready to operate with 4-foot test leads and complete operating instructions.

Full information will be supplied by THE GOLDAK COMPANY, INC., 1544 W. GLENOAKS BLVD., GLENDALE 1, CALIF., or may be obtained by using the Post Card following Page 50. Circle No. 811.



GATE VALVES

When it is desired to install a gate valve for throttling purposes, or in a vertical pipe line, M & H double square bottom valves have many important advantages.

When valve is opened, each of the three shoes on both discs immediately contact the feathered edge of the tracks. These three contacts result in the disc being eased away instantly from the seat. The shoes then ride the tracks squarely and firmly for the full travel of the disc. In closing, discs ride the tracks down to a point exactly opposite the valve seat. At that point, the discs are clear and free to seat by action of the two spreaders, each functioning independently of the other. The tracks are stainless steel channels and the two side shoes are bronze-faced.

M & H double square bottom valve prevents the down stream gate from tilting into the down stream port opening and by chatter or vibration damaging the seat and gate rings. These valves can be installed with either disc on the down stream side.

M & H VALVE AND FITTINGS COMPANY, ANNISTON, ALABAMA

M&H PRODUCTS FOR WATER WORKS • FILTER PLANTS INDUSTRY • SEWAGE DISPOSAL AND FIRE PROTECTION

Speeds Pipe-Laying Operations

Municipal water, sewer, and gas departments will find many uses for the pipelayer attachment announced by MIDWESTERN MANUFACTURING CO., INC., of TULSA, OKLAHOMA, to be employed with Caterpillar D2 tractors.

Known officially as the No. 2 Side Boom, the new attachment has a lifting capacity of 8,400 pounds at 2-foot overhang. Easy operation of the heavy-duty boom and load winches is assured by the use of hydraulic controls. Only two levers are used to control the pipelayer's action.

A 1,200-pound counterweight helps provide needed stability, as does the long track frame of the special D2 Tractor arrangement used with the new pipelayer. The standard arrangement will have 12-inch grouser shoes.

Other advantages include the relatively narrow (50-inch) track gauge and high (10-inch) ground clearance that make it possible for the machine to work on a narrow, rough right-of-way.

The new pipelayer attachment will be

offered through Caterpillar dealers. Complete information about it will be supplied directly by Midwestern Manufacturing, or can be obtained by use of the Post Card following Page 50. Circle No. 805.

Koehring and C-R-C Merge Activities

In a joint announcement, the Koehring Company of Milwaukee, and Crutcher-Rolfs-Cummings, Inc., of Houston, Texas, made known their decision to merge certain of their activities. Under the arrangement, Koehring acquires the designs and manufacturing rights to the C-R-C Big Incher and Middle Incher cross-country ditching machines, to be built at Newton, Ind., by the Parsons Company, a Koehring subsidiary. C-R-C will sell the Big Incher, Middle Incher, the line of Koehring excavators and Parsons Trenchliners to cross-country pipeliners.

Upon disclosing the details of the transaction, Julien R. Steelman, president of Koehring, and A. S. Crutcher, president of C-R-C, stated that the action would benefit both firms in that each would be provided with the assistance, know-how, and products that normally would take years for either firm to develop independently.

Ryerson Builds Office at Spokane, Wash.

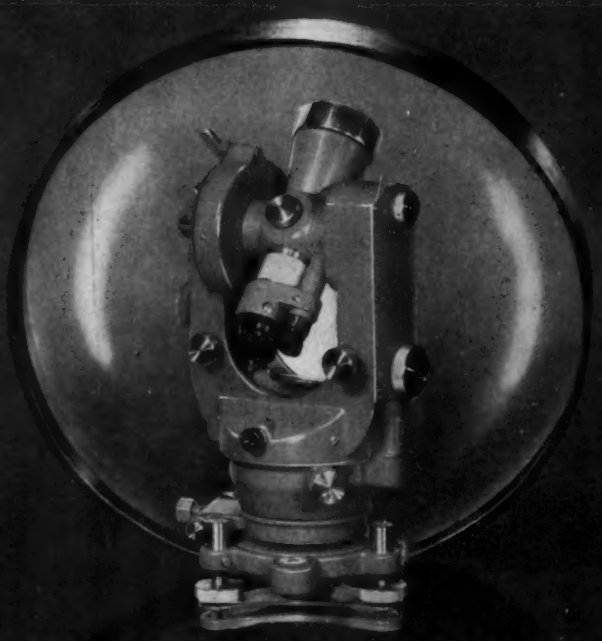
A new office building, to contain approximately 4,500 square feet of space, is under construction at the Spokane, Washington steel service plant of Joseph T. Ryerson & Son, Inc. It is expected to be completed about September 1, 1956. Main offices of JOSEPH T. RYERSON & SON, INC., are in CHICAGO, ILL.

Dorr-Oliver Expands Manufacturing Facilities

A $900,000 expansion program has been announced by DORR-OLIVER, INC., for its manufacturing plant at Hazleton, Pa. Greatly enlarged fabricating facilities will enable Dorr-Oliver to produce, at its own manufacturing plant, structural parts which have been subcontracted to outside firms in the past. These new facilities will, in addition, allow greater production flexibility and control. They are expected to be in operation by the end of the year.

WILD®

HEERBRUGG



WILD T-1 OPTICAL REPEATING TRANSIT

Here is unmatched speed, precision and convenience. Optically and mechanically, it is designed for fast set-up, error-free reading, maximum versatility, and for day or underground use under the most rugged conditions.

TWO MODELS AVAILABLE

New Model

Reading direct to 20 seconds, interpolation to 10 seconds.

Standard Model

Reading direct to 1 minute, estimation to 6 seconds.

Priced at $718 and $700 respectively, F.O.B. Port Washington, N. Y. Tripods extra.

WRITE FOR DETAILED INFORMATION . . . and use the Wild Heerbrugg advisory services without obligation.

WILD HEERBRUGG INSTRUMENTS, inc.

Main at Covert Streets · Port Washington, N.Y. POrt Washington 7-4843

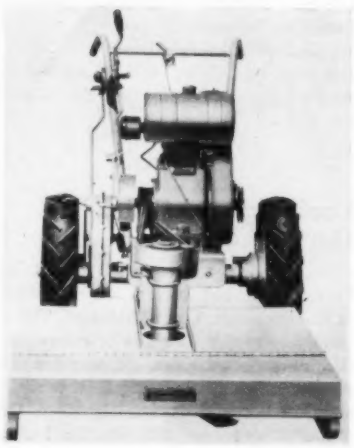
SALES • FULL FACTORY SERVICES

Performs Multiple Clearing Jobs

The "Series E" multi-purpose heavy-duty power unit just announced by the Kut-Kwick Corporation, is more than a grass or brush cutter. This machine features a complete series of heavy-duty attachments that enable it to mow grass, cut tall weeds and dense underbrush, fell trees, remove stumps, power a snow-dozer blade, plow, disc, or cultivate land.

Two engine choices are available—either the 6.8 or the 8.25 hp Wisconsin. The unit is self-propelled, and has a reverse drive. It has a fully-enclosed, geared transmission which operates entirely independently of the cutter unit. The powerful new machine has free wheeling in neutral, and a differential action axle driving both rear wheels.

It is designed and has been field tested for banks up to 60% grade, and is at



home on uneven ground and rough, rocky terrain. The large rear wheels and the balanced weight distribution allows the operator to lift the cutter over rocks, stumps, etc., with slight finger pressure. The large wheels also give a generous 9-inch clearance that makes the machine ideal in rough terrain.

For additional details, write to KUT-KWICK CORPORATION, DEPARTMENT A-98, BRUNSWICK, GA., or use the Post Card following Page 50. Circle No. 784.

These figures from the Department of Commerce reveal the urgent need that exists today for many communities to plan ahead for future needs of their water systems.

When your community enlarges its water system, remember that dependable water *delivery* now and in future years is of paramount importance. Time has proved that

PERMANENT CAST IRON PIPE
Is the Best Buy

No other pipe has ever matched the record of longevity, durability, dependability, low maintenance cost and long run economy of strong and rugged Cast Iron Pipe. That is why it is rightly known as "America's No. 1 Tax Saver."

★ ★ ★ ★ ★

Our Company does not manufacture pipe but supplies many of the nation's leading foundries with quality iron from which Cast Iron Pipe is made.

WOODWARD IRON COMPANY
WOODWARD, ALABAMA

Pick-Up Truck Turns Fire Fighter

H. S. Watson Company of Emeryville, California and Toledo, Ohio, announces their new fire-fighting pumper kit for pick-up trucks.

This installation makes any pick-up a ready fire-fighter, quickly available to extinguish brush, dump and other small fires.

The pump for the kit, which is quickly mounted or dismounted, takes its motive power from a power take-off shaft coming out of the rear end of the truck just under the body. The pump develops up to 350 lbs. of pressure, to make a penetrating fog spray. With this

type spray, the 50 to 300 gallons of water that a light truck can carry will go a long way.

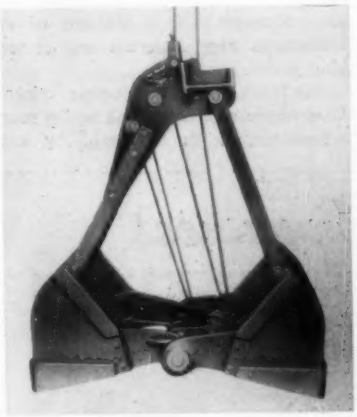
Watson Company officials state that another advantage of the rear mounted drive shaft is that it provides an available power source for driving many other tools which usually require an auxiliary power plant.

For free literature entitled: "The Practical Way to Stop Fires Before They Spread," write to H. S. WATSON COMPANY, EMERYVILLE 8, CALIF., or use the Post Card following Page 50. Circle No. 802.

New, Light-Weight Clamshell Bucket

Latest addition to Erie's clamshell bucket line is a ⅜-yard Extra Light Rehandler. The XLR-38 is made especially for 6- to 12-ton equipment such as: Quick Way, Shield Bantam, Sargent, Dixie, Little Giant and Mitey Mite.

The XLR-38, now in stock at all distributors, can be had with or without teeth and counterweights. The XLR-38, along with the other XLR sizes up to and including 5 cubic yards, brings to 7 the number of clamshell buckets now in the Erie line. They are: Extra Light Rehandler, Light Rehandler, Standard



Rehandler, Wide Barge-type Rehandler, General Purpose, Heavy Duty, and Extra Duty.

For a folder describing the XLR-38, write to ERIE STRAYER COMPANY, GEIST ROAD, ERIE, PA., or use the Post Card following Page 50. Circle No. 815.

AMERICA'S
HEADQUARTERS
FOR
FIRE EQUIPMENT
AND
POLICE EQUIPMENT

•

WRITE FOR
NEW CATALOGS

•

W. S. DARLEY & CO.
ESTABLISHED 1908
CHICAGO 12, ILLINOIS

CALMET after CALMET,
City after City... Year after Year
MAXIMUM REVENUE
MINIMUM UPKEEP
. . . STANDARDIZE ON CALMET WATER METERS TODAY!

"THE METER YOU CAN COUNT ON"

Manufactured by
Well Machinery & Supply Co., Inc.
Fort Worth, Texas

Improved Sewer Joint Compounds Show Strength, Watertightness

The Gulf States Asphalt Company has developed improved methods and materials for jointing clay and concrete pipe. Three of the sewer joint compounds are as follows:

The GS-722 is a cold applied high-grade ready mixed, ready for use asphaltic base compound of superior quality. It is a favorite in dry trenches and does an excellent job in wet trenches.

The GS-705 is a hot-pour mineral filled, asphaltic base compound having the reputation of being the most universally used hot-pour compound for over 60 years. It is the best of the bituminous base materials and reasonably priced.

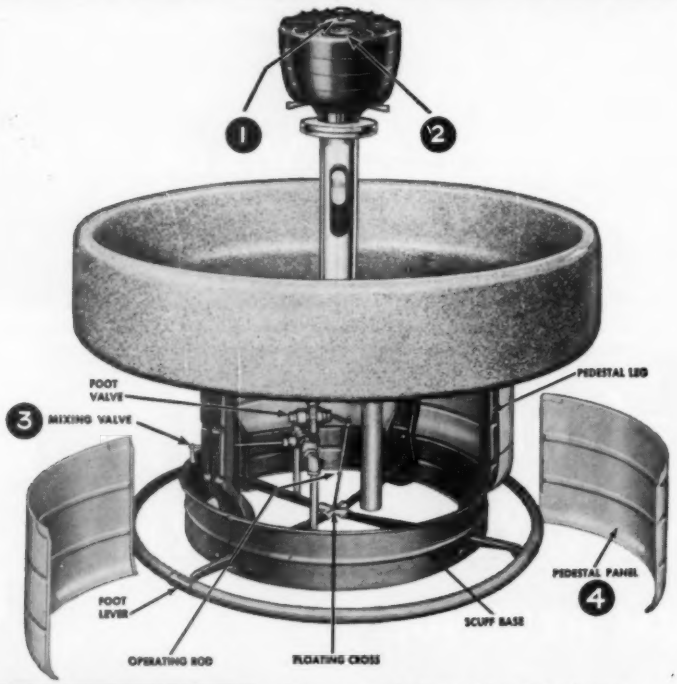
ROOT-SEAL is a hot-pour mineral filled plastic base compound having many advantages: it is unaffected by long

periods of over-heating; does not give off injurious fumes; will not ignite at heating or melting pot temperatures; pours as easily and freely as water; and it makes the best possible joint.

For further information, write K. T. SNYDER COMPANY, 4101 SAN JACINTO STREET, HOUSTON 4, TEXAS, or you may use the Post Card located for your convenience on the insert following Page 50. Circle No. 819.

Bradley Announces

NEW FOOT-CONTROL MECHANISM



The tops in sanitation—up to 10 wash at one time.

Now no lag bolts or other floor fastenings are required. New "Floating Cross" control mechanism, simple and accessible, provides better foot-control.

Plus Vandal-Proof Features

1. Tamper-proof nuts and coupling nuts lock the tie rod assembly.
2. Meddling with contents of Soap Dispenser is prevented by locking type Filler Cap.
3. Mixing Valves are concealed inside the metal pedestal on Washfountain with supply lines from below the floor.
4. Metal pedestal has removable panels—to afford accessibility to valves and fittings—but effectively restrain unnecessary tampering.

BRADLEY WASHFOUNTAIN CO.
2333 W. Michigan St.
Milwaukee 1, Wis.

BRADLEY washfountains

Distributed Through Plumbing Wholesalers

Write for Catalog 5601

Big-Beam Explosion-Proof Electric Hand Lamp

An explosion-proof electric hand lantern (Model 287EX), approved by Underwriters' Laboratories for Class 1, Group D hazardous locations, has been added to the Big Beam line by U-C Lite Manufacturing Co.

The spark-proof case and spring bulb ejection features of the explosion-proof model supplement the construction specifications found in the remainder of the Big Beam line.

The container and head are of drawn brass and finished in red baked enamel. The handle is die cast zinc. Wires from the container to the head are sheathed in flexible brass tubing. Lead seals on container latch and rim screw prevent tampering by unauthorized persons. The container latch can be padlocked.

The lantern bulb is held in its socket

by a compressed high-tension spring clamped over the glass envelope of the bulb. When the bulb cracks or breaks, the spring crushes the bulb and simul-

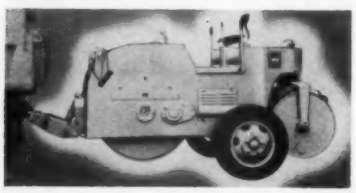
taneously ejects bulb-base from contact socket, thus eliminating filament afterglow.

The switch is on-and-off push. Battery connectors are pressure-type.

The Model 287EX holds two standard 6-volt lantern batteries and operates on one or both.

For further information, direct inquiries to U-C Lite Manufacturing Co., 1050 West Hubbard Street, Chicago 22, Ill., or use the Post Card following Page 50. Circle No. 800.

Tow Attachment Offered for New 3-5 Ton Tandem Roller



A towing attachment for its new 3-5-ton tandem roller is now being offered by Huber-Warco Company of Marion, Ohio.

The attachment can be either supplied mounted on the roller or it may be purchased separately and bolted on in the field. It consists of a towing hitch with a built-in hydraulic jack; axle and wheel assemblies; and axle carriers for both working and towing positions.

Features of the attachment include 7.50 x 20 tires, wheels mounted on tapered roller bearings and an 8-inch vertical adjustment at the hitch to provide a level travel position for the roller. A power hydraulic jack in the hitch assembly is optional.

The newly-announced Huber - Warco 3-5-ton tandem, itself, features a water-cooled 41-hp engine and a torque converter. Its guide roll assembly has tapered roller bearings—adjustable on the job to eliminate road scuff caused by possible looseness in the assembly.

Other features of the roller include an extra-large guide roll—34 inches in diameter—to prevent pushing material instead of rolling it; accessibility of all major assemblies for servicing; and hydraulic steering with a variable speed valve.

For full details, write Huber-Warco Company, Marion, Ohio, or use the Post Card following Page 50. Circle No. 807.

Save Up To 50%

in man-equipment hours

with the new... Multi-Purpose LoDaL HYDRAULIC TRUCK LOADER

HYDRAULIC TRUCK LOADER

- Loads itself—or others
- 3,000 lb. capacity
- Years of proven performance

The LoDaL hydraulic truck loader can load itself and other trucks as well. Loads the heaviest types of material in just a few minutes. On short haul and scattered yardage operations, the LoDaL will outperform other types of machines. Unmatched economy with ONE MAN and ONE MACHINE . . . for such jobs as loading sand or gravel, street repairs, sweeper pickup, rubbish collection, leaf loading, coal handling, cinder removal, snow removal . . . and many other daily tasks.

Write For Catalog . . .

Users around the country are finding LoDaL's utility to be an efficient answer to their problems . . . fully described and illustrated in complete new catalog . . . write for it today.

LODAL, INC.

NORWAY MICHIGAN

Pierce
QUALITY BRAND
UTILITY BODIES

"SM" SERIES — 74"-104" long by 74"-88" wide. Completely equipped with tool and parts storage space for efficient operation.

"CMS" SERIES—74"-104" long by 74"-88" wide. Transverse compartment through front of body carries meters, parts and tools. Rolling drawers with removable dividers.

"SML" SERIES—84"-100" long by 74"-86" wide. Hand, electrically, and hydraulically operated. Simple installation. Fast operation. Also, forestry bodies with ladder and crew compartments.

Also complete line of Line Construction, Gas, Ladder, Aerial Tower Bodies, Trailers and Pick-up Side Boxes.

Write for Complete Information

Company .....
Name .....
Address .....
City ..... State .....
I am interested in
Service Bodies ☐ Trailers ☐
Pick-up Boxes ☐ Line Bodies ☐
for ½ ton ☐ ¾ ton ☐ 1 ton ☐
1½ ton Chassis ☐

AUTO BODY WORKS, Inc.
APPLETON, WISCONSIN

Purchasing News

New Blaw-Knox Plant Now in Production

Blaw-Knox executives get a ride on the first unit out of the company's new Mattoon, Ill., plant.

The first piece of road building equipment to come off the assembly line of the new Blaw-Knox plant at Mattoon, Ill., is the bituminous paver-finisher, PF-90. Just one year and one day after the alfalfa was cut from the plant site, the PF-90 rolled out on the loading ramp for customer delivery.

While Blaw-Knox Company and Robert P. McKenrick, vice president and general manager of the new facility, are particularly pleased with the year-and-a-day record, Mr. McKenrick cautions that "a large backlog of orders has been built up." Orders for PF-90s, Truk-mixers, wideners, and the paving line package will encounter some delays.

New Load Fuse for Photoelectric Control

A new load fuse assembly is now available for quick, convenient mounting inside the sockets of photoelectric lighting controls. The purpose of a load fuse is to protect the load from line surges and to protect the line and control from shorts and surges occurring on the load circuit. An externally mounted

The Bernard
Pressure
Pilot Control
for water supply systems

Designed to operate pump motor controllers on single or multiple pump systems, according to the pressure demands, and to assure correct start and stop operation of pump motors without interference of water system surges. The Pilot Control also operates selective sequence control of pump motors according to the anticipated demand.

Write for further information

ERNEST BERNARD ELECTRIC CO.
10335 S. Morgan St.
Chicago 43, Illinois

Burke
BETTER-BUILT EQUIPMENT
... for PLAYGROUND, RECREATION, SPORTS
... tops in Quality • Safety • Service

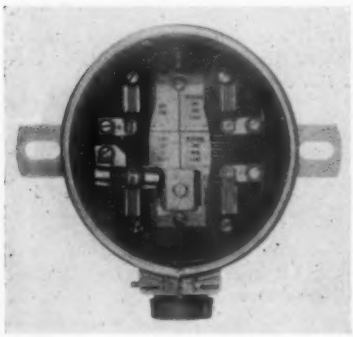
Heavy-duty Playground Equipment . . . and Park Benches • Picnic Tables • Portable Prefabricated All-Steel Platforms and Bleachers • Bicycle Racks • Offset Basketball Backstops . . . and other recreational and sports equipment.

Use the Burke personalized planning and advisory service at no cost or obligation. Write for complete information about products and name of nearest dealer.

THE J. E. BURKE COMPANY
NEW BRUNSWICK • N. J.
FOND du LAC • WIS.

fuse is the alternate method. The socket mounted assembly makes load fusing simple, saves space, and reduces cost.

The complete load fuse assembly consists of a meter socket terminal block, on which a 30-ampere cartridge fuse is



Load fuse assembly mounted in control socket.

mounted. Installation is easy. All you do is replace one meter socket terminal block with the new load fuse terminal block.

Complete data and prices on the new load fuse may be obtained from THE FISHER-PIERCE CO., 94 PEARL ST., S. BRAINTREE, BOSTON 85, MASS., or you may use the Post Card on the insert following Page 52. Circle No. 809.

Electric "Policeman"

A small, light, inexpensive car is offered for use in place of heavier vehicles on such service as parking-meter patrol.

Powered by six storage batteries, it is available with windshield, an all-weather top, siren and lights.

Now undergoing tests in several California cities, the "Electric Policeman" is manufactured by LAHER SPRING & TIRE CORP., ELECTRIC CAR MFG. DIVISION, 2615 MAGNOLIA ST., OAKLAND, CALIF. For further information, write the company directly, or you may use the Post Card on the insert following Page 50. Circle No. 793.

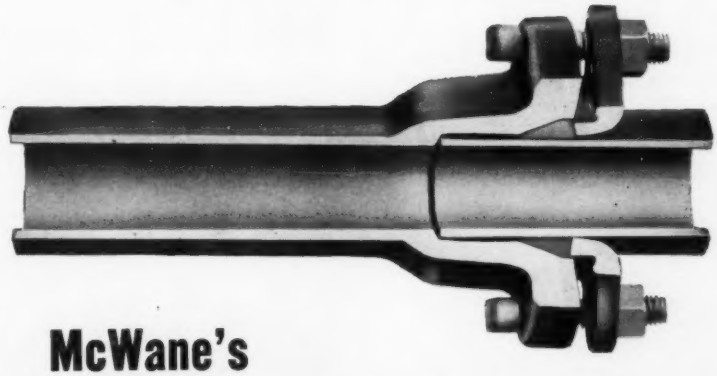
Broom Manufacturer Expands Again

The VAN BRUSH MFG. CO., INC., of KANSAS CITY, MO., manufacturers of street-sweeper brooms, recently purchased by Tom B. Kennedy, expands again. Mr. Kennedy has just announced that he is taking over an additional 3,000 square feet in an adjoining building to his present location at 327 Southwest Blvd.

The new space will be utilized partly for warehousing facilities and also for the installation of a new heavy brush making machine that will automatically fill broom cores for all makes, sizes and types of street sweepers.

Mr. Kennedy states that the expanded facilities will permit faster service to municipalities needing rewound sweeper cores. Details about this and other services can be obtained directly from the manufacturer, or by use of the Post Card located for your convenience on the insert following Page 50. Circle No. 816.

Quick Shipment!



McWane's

MODERN 20-FOOT LENGTHS

2" and 2¼" CAST IRON PIPE

McWane 2-inch and 2¼-inch centrifugal CAST IRON PIPE in 20-foot laying length has all the well known characteristics of Super-DeLavaud larger-diameter pipe—smooth, straight barrel, even wall thickness, sound metal section, easy to cut and easy to tap.

But, it has few joints to make, lower construction costs. Every time you lay a pipe, your line grows 20-feet longer.

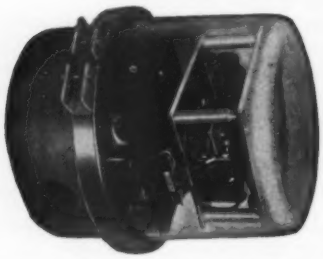
Service connections are made with standard corporation cocks for water and standard No-Blo tees for gas. Standard strap saddles or service clamps can be used if preferred. Write or telephone nearest McWane Sales Office.

McWANE CAST IRON PIPE COMPANY

GENERAL OFFICES & FOUNDRIES, BIRMINGHAM, ALA.

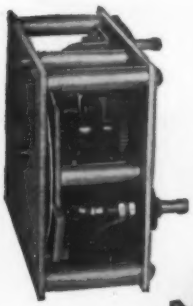
Sales Offices: Dallas Chicago Kansas City New York Birmingham

TIME-O-MATIC FLASHERS JACK MOUNTED

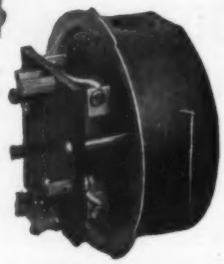


Time-O-Matic Jack Mounted Flasher in Standard Meter Case

Single or two circuits, every model with built-in eliminators. Available with standard meter case (above) or separately with Jack mounting panel (below).



Time-O-Matic Jack Mounted Flasher Only



Time-O-Matic Jack Panel in Meter Case

SPECIFY DEPENDABLE TIME-O-MATIC

↓

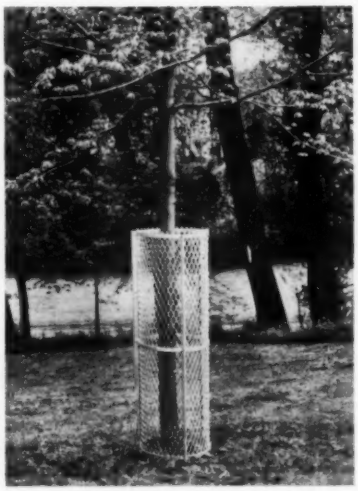
"A Sign of Good Control"

•

TIME-O-MATIC CO.
1108 Bahls Street
Danville, Illinois

Purchasing News

Protects Trees, Shrubs



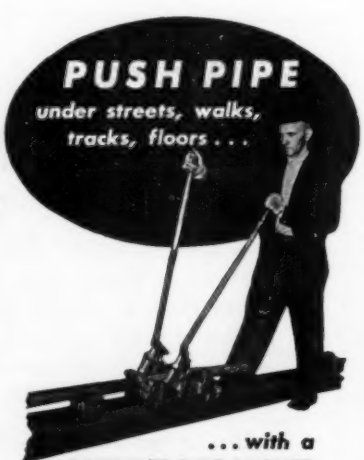
Wheeling Steel's new guards keep animals and vandals from young trees and shrubs. Made of galvanized Wheeling expanded metal the guards will resist rusting and can be pointed or moved if desired. They are 18 inches in diameter, have a 60-inch mesh height, and are 88 inches over-all. The guards are available at Wheeling Corrugating Company warehouses in major cities in a to-be-assembled, knocked-down package, complete with nuts and bolts.

For details, write to WHEELING CORRUGATING CO., WHEELING, W. VA., or use the Post Card following Page 50. Circle No. 810.

New Spreader Completes All Tests

Highway Equipment Company, Inc., Cedar Rapids, Iowa, has run all final complete tests on the NEW LEADER Model "L" Aggregate Spreader and is now announcing it to the public. This new aggregate spreader has a swivel wheel arrangement on the front of spreader which prevents the unit from tipping forward or backward when unhooked from truck.

A larger diameter feed roller with deep cut right and left spirals to grip material makes it possible to spread aggre-



Speed jobs with this quick, simple way to install underground pipe. With the GREENLEE *one man* pushes pipe under obstacles . . . no tearing up of pavement, floors, lawn . . . eliminates extensive ditching and tedious backfilling! Two models and special power pump to fit your various jobs. Write for facts today.

GREENLEE

Greenlee Tool Co., 2028 Columbia Ave., Rockford, Ill.

SterElators by Everson

Chlorine Gas Control Equipment
Visible Flow Indication
Vacuum Solution Feed
for
Water Works
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Sewage Treatment
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Industrial Plants
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Swimming Pools
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Easy to Install
•
Easy to Operate
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Low Maintenance Cost
•

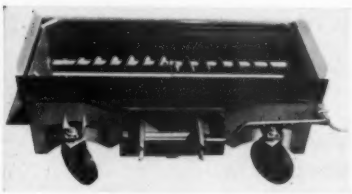
Everson STERELATORS can be furnished for fully automatic, semi-automatic and manual control

Write for STERELATOR Bulletins

EVERSON MFG. CORP.
203 W. Huron St., Chicago 10, Ill.

gate ranging from fine sand to 2-inch crushed rock.

New spreader hitch allows fast hookup to all type trucks. Automatic reversible transmission, fully enclosed, running in oil, automatically shifts in forward gear



when going ahead and in reverse when backing up. A heavy-duty removable operator's platform is featured on each end of spreader.

For further information write to HIGHWAY EQUIPMENT COMPANY, INC., 616 D AVENUE, NORTHWEST, CEDAR RAPIDS, IOWA, or use the Post Card following Page 50. Circle No. 817.

New Salt Spreader

The "Jiffy," a completely new design of spreader, will solve your ice control problems. It can be used to advantage on state, county and township highways and roads, city streets, airport runways, and for treatment of bleeding surfaces.

The "Jiffy" features safety, speed, economy, efficiency and simplicity in construction. One-man operation and quick attachment to the truck make the "Jiffy" a valuable piece of equipment.

A choice of three models is available. Model JSG is a dual wheel driven machine available in two lengths. The 70-inch machine is used on 1½- to 2-ton trucks and the 80-inch machine is used on 3-ton trucks and larger. Length of machine is measured as extension of machine from truck.

Write to M. A. ELLIOTTE, P. O. Box 930, PONTIAC, MICH., or you may use the Post Card on the insert following Page 50. Circle No. 797.

Industrial Engine-Generators

Waukesha Motor Company's latest development in heavy-duty internal combustion engines and electrical equipment is its new line of industrial engine-gener-

TWO PIECE
sliding or screw type cast iron valve boxes for covering 4" thru 10" valves for water or gas. Rugged construction for lifetime service. 5¼" shaft. Extensions as required.
Adjustable
VALVE BOXES
THREE PIECE
valve boxes supplied with separate bases are available in sliding or screw type. Made with 5¼" and 7" shafts with extensions as required. Complete line of service and roadway boxes.
ALABAMA PIPE CO.
We Invite Inquires to Our Nearest Sales Office
120 S. Michigan Ave. / 350 Fifth Avenue
Chicago, Illinois / New York 1, New York
General Sales Offices
ANNISTON, ALABAMA
APCO

BUILDING NEW SEWAGE LIFT STATIONS?
Be sure of Continuous operation during Power Failure!
WITH Katolight EMERGENCY
ELECTRIC POWER PLANTS
When normal electric power fails, KATOLIGHT Power Plants take over instantly, assuring uninterrupted electric power to operate sewage lift station pumps, water pumping stations, other vital equipment.
Whether your municipal requirements call for portable, standby, or continuous power, KATOLIGHT Power Plants are your answer. KATOLIGHT is experienced and equipped to meet all standard and special applications up to 500 KVA.
KATOLIGHT'S advanced features assure dependable long life . . . low cost operation.
WRITE REGARDING YOUR REQUIREMENTS
Katolight CORPORATION
Box 891-25 Mankato, Minnesota

FROM THE WORLD'S FINEST DETECTION EQUIPMENT MANUFACTURERS
Let 1 instrument do all your work...
THE Dualtronic MODEL LC-5
for pipes
for leaks
for valves
Here is the Instrument for which Municipalities have been looking . . . ONE Instrument that locates Pipes, Leaks and Valves, yet costs no more. Model LC-5 not only saves you money but does the job accurately and dependably. Ruggedly constructed. Compact. Lightweight. Simple, one man operation. Model LC-5 is fully guaranteed.
plus these BIG features:
1. Use as Pipe Locator, Leak Detector, Valve Locator.
2. Pin-Point Detection.
3. Automatic on-off and power switching.
4. Crystal microphone.
The GOLDAK Company
Leading Electronic Manufacturers
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Glendale 1, Calif.
WRITE FOR COMPLETE BROCHURE

STEEL

Every Kind

Quick Delivery

Plates, Structurals, Bars, Sheets, Tubes, etc. Carbon, Alloy, Stainless Steels, Babbitt Metal.

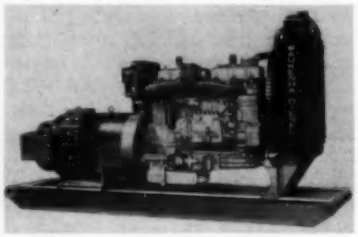
RYERSON

Joseph T. Ryerson & Son, Inc. Plants at: New York, Boston, Wallingford, Conn., Philadelphia, Charlotte, N. C., Cincinnati, Cleveland, Detroit, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles, San Francisco, Spokane, Seattle.

Purchasing News

ator sets with capacities of from 50 to 600 KW.

Illustrated is a typical Waukesha 148-diesel series Industrial Enginator set. This series is available in capacities from 50 to 120 continuous KW rating. The capacities table shows the ratings avail-



able with various RPM generators and for stand-by intermittent, or continuous duty. The Waukesha 148-diesel is available as a normal diesel with standard crankshaft (148-DKU), a normal diesel with counterbalanced crankshaft (148-DKBU), or a turbosupercharged diesel with counterbalanced crankshaft (148-DKBSU). The largest engine-generator set built by Waukesha is powered by the V-12 turbocharged Model VLRDBSU rated at over 1100 horsepower for continuous duty.

Waukesha engine-generator sets, built for operation on gas, gasoline, or diesel fuels, are known by the name of Waukesha Enginators. To get full details either write directly to the WAUKESHA MOTOR COMPANY, WAUKESHA, WIS., or use the Post Card following Page 50. Circle No. 785.

New Round-Top Receptacle

The Round Top Container is one of the latest offerings by the UNITED METAL CABINET CORP., POTTSVILLE, PA. Its outer shell is constructed of electrically-welded, heavy-gauge furniture steel with a stainless steel base and a self-closing, stainless steel door. The sanitary, white, heavy-enamel finish is applied over Bonderite and then baked at a high temperature. The Round Top is also available in Hammertone green, gray and special colors.

According to the manufacturer, the new container is tough and durable, yet gives a feeling of featherweight lightness. The outer shell can be lifted easily to expose the corrosion-resistant, galvanized

Automation Parking Pays Big Revenues

WRRS ELECTRIC PARKING GATES

Eliminate Labor Costs—Easy to Operate

Municipalities and parking operators find that Automation Parking with WRRS Gates pays big revenues. It results from low installation costs, practically no maintenance costs, and no labor costs—the biggest cost of parking lot operation. And it's a simple matter to make periodic collections at one or two coin boxes.

This is the answer to off-the-street parking problems. WRRS Gates operate with Remote Controls, using coins, tokens, keys, or any combination of these methods. WRRS Gates are safe, function in all types of weather, and are built to last 20 to 30 years.

Send us a diagram of your lot, and receive, without obligation, a parking plan and cost estimate.

MADE BY THE BUILDER OF 10,000 RAILROAD CROSSING GATES 5977

WESTERN RAILROAD SUPPLY COMPANY

General Offices and Factory

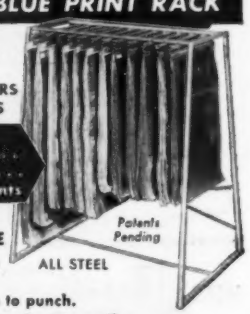
2430 S. Ashland Ave. • Chicago 8, Ill.

IN CANADA: Cameron, Grant, Inc. 465 St. John Street, Montreal 1, Quebec, Canada

Glider BLUE PRINT RACK

FOR ARCHITECTS, ENGINEERS, CONTRACTORS & FACTORIES

NOW Easy to File . . . Easy to Find . . . Your Blue Prints



20 EXCLUSIVE FEATURES, Including:

1. No holes to punch.
2. Insert sets of prints easily.
3. Replace any sheet without removing other sheets.
4. Various sizes of prints accommodated.
5. No protruding ends of clamps.
6. Each plan holder clamp holds 1 to 100 prints.
7. The "Glider" can hold 12 to 18 sets.
8. Clearly visible index shows location of sets.
9. No bolts that scratch furniture.
10. Easily adjustable tracks allow for varying thicknesses of sets.

$94.50 F.O.B. Chicago INCLUDING 12 PLAN HOLDERS

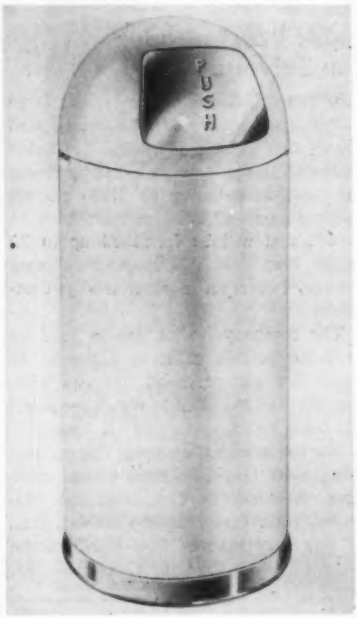
ORDER TODAY OR WRITE FOR BROCHURE

MOMAR INDUSTRIES

4323 W. 32nd St. • Chicago 23, Ill.

steel inner container, which has a handle for easy emptying.

For full details on the new Round Top Container, write directly to the United



Metal Cabinet Corporation, or you may use the Post Card located for your convenience on the insert following page 50. Circle No. 794.

New G.E. Floodlight

This 17-pound, aluminum, general purpose floodlight has an exclusive, newly designed rear reflector which, combined with the front reflector, provides higher average maximum beam candlepower. It is described in Bulletin GEA from General Electric Co., Schenectady 5, N. Y. Write directly, or you may use the Post Card on the insert following Page 50. Circle No. 792.

KOHLER Electric Plants

. . . portable, on-the-job power that cuts work time

MODEL 1.5M25, *1500 watts, 115 volt AC. Manual starting. 2500 watt AC portable models also available.*

Move jobs faster with your own compact portable power plant. Low-cost model operates grass shears, hedge trimmers, chain saws for pruning and for cutting fallen trees after storms, carpenters' saws, drills, electric spades, pipe threaders and cutters.

Other models, 500 watts to 35 KW, for trucks, street repairs, police and fire departments, civil defense units. Automatic stand-by models for emergency service in hospitals, schools, sewage and filtration plants, and for communications, when central station service fails. Write for folder K-13

Kohler Co., Kohler, Wisconsin. Established 1873

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS
AIR-COOLED ENGINES • PRECISION CONTROLS

SAVE MONEY
SEND US YOUR ORDERS FOR ROTARY SWEEPER NEW BROOM CORES

Do You Know We Manufacture NEW Cores of the following Types:

- Grace (3 types)
- Hough
- M-B (Meli-Blumberg)
- Detroit-Harvester
- Fordson
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- Little Giant
- Huber
- Lull
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and other popular makes

YES! We Can Make Cores to Your Specification

We Rebuild—Repair—Refill All Makes and Sizes of Broom Cores.

Immediate Shipment

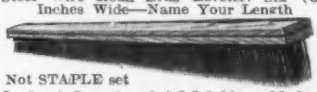
SUGGESTION—To Far-Away Users—Buy your NEW Cores only without any filling or we will furnish complete Palmyra-Hickory or Bass Fibres—Even Steel Wires.

Road Builders—It's Sensational!!

BIG PECKERWOOD BIG

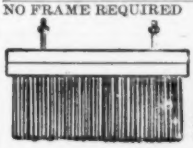
C-O-N-T-I-N-U-O-U-S

Steel Wire Road Drag Leveler. Six (6) Inches Wide—Name Your Length



Not STAPLE set
In Stock Lengths of 4-6-8-9-10 or 12 foot.
Only $3.50 Foot
"Approx. wt. 5½ lbs. per ft."

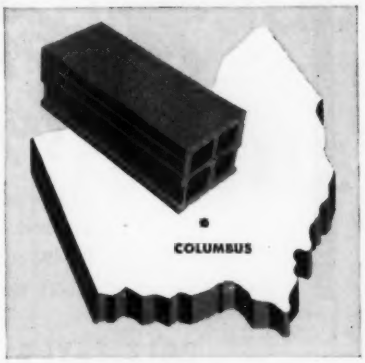
NO FRAME REQUIRED



The LITTLE PECKERWOOD
3" Wide, 15" Length
This Fits Your Frame
NOTE—Both Drags Can Be Furnished with Fibre.
Only $2.50 Ea.

KENNEDY'S
Since **VAN BRUSH MFG. CO., INC.** 1928
327 Southwest Blvd., Kansas City, Mo.

Another NEW Leopold Installation...



New 48 mgd Columbus, Ohio plant equipped with Leopold Filter Bottoms

For top performance, use Leopold Bottoms. They work better . . . last longer. Write for details.

F. B. LEOPOLD CO., INC.

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LEADITE

The Pioneer Self-Caulking Material for C. I. Pipe

4 REASONS

why more miles of cast iron water mains are joined with LEADITE than with any other melted self-caulking material:

- MELTS EASILY
- GOES FARTHER
- SAVES TIME, LABOR, COST OF MATERIAL
- MAKES A GOOD TIGHT JOINT THAT IMPROVES WITH AGE !

THE LEADITE COMPANY
Girard Trust Co. Bldg., Phila. 2, Pa.

No Caulking

Purchasing News

Concrete Sewer Pipe Has Rubber Joint

The George W. Hoffmann Co. has just developed and put into production a new vibrating pipe machine that makes small diameter concrete sewer pipe with

a tongue strong enough and precise enough to accommodate a Tylox rubber gasket. The manufacturer reports that the pipe can be installed at high speeds.

The pipe is being manufactured by the MADISON CONCRETE PIPE CO., OF 3725 LEXINGTON AVE., MADISON 4, WIS. It is said to feature compressive strengths at least double and often triple that required in specifications of the American Society of Testing Materials.

Detailed information on Vibrapipe sewer pipe may be obtained directly from the Madison Concrete Pipe Co., or you may use the Post Card on the insert following Page 52. Circle No. 799.

Bales Waste Paper for Salvage

Where refuse collections include large quantities of scrap paper and corrugated boxes and sheets, a baler is available that can bind four tons of scrap paper per hour in bales up to 1,000 pounds each. Completed bales measure 26 x 32 inches, and will be furnished up to 72 inches long. In this shape they often are easy to market to paper salvage companies.

The company invites you to send up to 2,000 pounds of scrap paper to be baled free and returned. If you wish, you can visit the plant to watch the material being baled.

For full information about this unusual offer, write David R. Brown, sales manager, BALEMASTER DIV., CHICAGO MACHINE TOOL CORP., EAST CHICAGO, ILL., or you may use the Post Card on the insert following Page 50. Circle No. 795.

CLT

Tax Equalization Appraisals

Fifteen years of unduplicated experience of producing highest quality appraisals for tax equalization purposes.

Client list and brochure upon request.

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No Charge for Meeting Rooms when sleeping rooms are used

300 modern newly decorated sleeping rooms from $4 single

For Reservations Write Samuel Leeds, Mgr. Dir., Box 100

NEW Hamilton Hotel

20 S. Dearborn St., Chicago

About People

Philip E. Sellers, sales vice-president of **Fischer & Porter Co.**, Hatboro, Pa., announces the appointment of James Kilmer as new advertising manager. Mr. Kilmer is a former member of the Industrial Advertising Department, Sun Oil Co.

A new sales agent, Oscar A. Slinkard, is announced by Armais Arutunoff, president of **Reda Pump Co.**, Bartlesville, Okla. Mr. Slinkard will handle pump sales in California and Western Nevada.

After serving in various sales and administrative capacities with **The Gamewell Co.**, Newton Upper Falls, Mass., Grenfell A. Swim has been elected executive vice-president in charge of sales, engineering and production. Mr. Swim has been associated with Gamewell since 1930.

G. A. Swim

Donald J. Phillips, sales manager for the **Baldwin-Lima-Hamilton Corp.**, Aurora, Ill., died recently at his home in Aurora. Mr. Phillips managed sales for the Austin-Western Works of the company's Construction Machinery Division. He had been with Austin-Western since 1943.

Scheduled to assist R. C. Beam, manager of welded pipe sales for **Armco Drainage & Metal Products, Inc.**, Middletown, Ohio, is Thomas H. Bell, Jr., a former salesman for the firm. Mr. Bell has been with Armco Drainage since 1935.

Two new sales representatives for Eastern and Western Pennsylvania are announced by the **Neptune Meter Co.**, 19 W. 50th St., New York 20, N. Y. Hood van den Arend, Jr. will be assigned to Eastern Pennsylvania, and Joseph R. Vetromile will be in the Western half of the State.

The transfer from Albany, N. Y., to Atlanta, Ga., of District Engineer Frank

Today's Facts on Modern **SEWAGE EJECTION**

Blackburn-Smith Mfg. Co., Inc.
57 Garden Street, Hoboken, N. J.
I want to know how I can get better sewage ejection at lower cost.
Name.....
Company.....
Address.....
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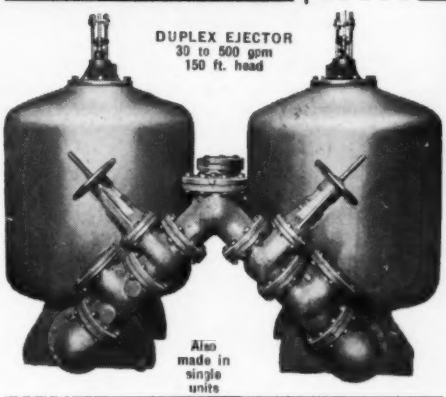

Features of BLACKBURN-SMITH EJECTORS
Switches operated automatically by float and electrical controls.
Snap-action valve controlled automatically, pneumatically and by float. Electrode controls.
Compact . . . motor compressor assembly and controls in "one package" unit.
Steel construction. Welded steel pots.
Simple piping for air, water.
No clogging screens, impellers, shredders.
No messy pump cleaning. Sanitary.
Unfailing, dependable operation.

BULLETIN S-50
for look-ahead municipal engineers

Get the facts you want on how to eliminate costly, complex piping for air and water, messy, unsanitary screens, impellers, shredders, expensive pump cleaning . . . in short, the facts on simple, dependable, economical, clean Blackburn-Smith Ejectors. Valves and switches are controlled automatically for unfailing operation by electricity, by floats, and by pneumatic action. Learn how simple, compact, and inexpensive they are to install, operate, and maintain compared to complicated systems. Get today's facts today—Send the coupon in now!

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AUTOMATIC PARKING features...
★ **FLEXIBILITY OF CONTROLS**—Choice of exclusive coded "card-keys", coins, tokens or any combination.
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★ **SIMPLICITY OF OPERATION**
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Write for descriptive literature.

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Phone LOngbeach 1-0217
Sales and Service Offices in Major Cities listed under BOWSER, Inc.

FIRE ALARM EQUIPMENT

FOR SALE

The Incorporated Village of Lynbrook, N. Y. has for sale 54-P.N.I.S. Fire Alarm Boxes, Gamewell, Horni and SAFA and one adjustable steel Battery Rack with plate glass shelves (crated). Reason for sale due to adoption of Telephone Fire Alarm System.

For further information consult Village Clerk, H. E. Dana, Municipal Building, Lynbrook, N. Y.

H. Gardner, is announced by J. E. Buchanan, president of **The Asphalt Institute,** Asphalt Institute Bldg., University of Maryland, College Park, Md. Mr. Gardner fills a vacancy created by Dillard D. Woodson, district engineer at Atlanta, when he was transferred to the Institute's College Park headquarters. Herbert Spencer, one of the founders of The Asphalt Institute, retired from his post as division engineer of the Institute's Atlantic-Gulf Division. He will continue to serve the Institute in a consulting capacity.

New sales manager for the Southwest Division of the **Caterpillar Tractor Co.,** Peoria, Ill., is William E. McCoy, former sales manager of the company's Eastern Sales Division. Mr. McCoy succeeds Bernard L. Hagglund who died May 12. He will locate at Caterpillar's San Francisco Office.

W. E. McCoy

Succeeding John E. Duesing as Pittsburgh district sales manager for the **Hagan Corp.,** 323 Fourth Ave., Pittsburgh 22, Pa., is Thomas M. Nourse, formerly a sales engineer at the company's Chicago office. Mr. Duesing is now national sales manager of Hagan's controls division.

James H. Stephens, former chief sanitary engineer of the South Carolina State Board of Health, is now associated with **The Harwood Beebe Co.,** municipal and civil engineers, Spartanburg, S. C.

J. E. Barthmaier has been named New York branch manager for the **Enterprise Engine & Machinery Co.,** San Francisco, Calif. Mr. Barthmaier formerly managed the company's Boston branch. He is succeeded in Boston by Ray Baumann. New Philadelphia district sales manager is E. W. Robinson. Enterprise Engine & Machinery has also appointed two new sales engineers. J. L. Roberts will work from the company's Los Angeles branch office, and Algot A. Green will operate from the New Orleans branch office.

The division of industrial engineering of **Joseph T. Ryerson & Son, Inc.,** Chicago 80, Ill., recently renamed the plant engineering division, will continue under the direction of Herbert G. Dent, according to a recent announcement. The company's standards and methods division, renamed the operating controls division, will have George M. Harding as its director. Both name changes were made to "more accurately reflect the nature of the duties and responsibilities of the divisions."

Oliver F. Gang, president of **The Ludlow Valve Mfg. Co., Inc.,** Troy, N. Y., informs us of the addition of Forbes Meston, comptroller, and David D. Ackerman, director of personnel, to the company's executive staff. In addition, all present officers of Ludlow have been re-elected by the company's board of directors.

From E. J. Kominek, general sales manager for **Infilco, Inc.,** Tucson, Ariz., comes news of the appointment of R. W. Schneider as field sales engineer for the States of Indiana, Michigan and Ohio. Mr. Schneider succeeds J. P. Manger, recently transferred to Tucson to work in Infilco Sales Project Engineering.

The newly-established Electronic Components Division of the **General Electric Co.** in Owensboro, Ky., will be headed by L. Berkley Davis, according to a recent announcement. The new general manager is also a commissioner for the City of Owensboro.

L. B. Davis

When J. M. Johns, general sales manager of **L.O.F. Glass Fibers Co.,** Toledo, Ohio, resigned his position recently, Clinton F. Hegg, a vice-president of the firm, was appointed to replace him. Mr. Hegg will direct sales activities in the automotive, textile mat and general products divisions.

The recent resignation of Charles Carmichael as supervisor of research and development for the **Enterprise Engine & Machinery Co.,** San Francisco, Calif., was followed by the appointment of a new research chief, Irving Halpern, to fill the position. Mr. Halpern is a 10-year veteran of diesel engineering research and design activity, last serving as senior research engineer for Enterprise.

Irving Halpern

Several announcements from the **Allis-Chalmers Mfg. Co., Milwaukee, Wis.,** include the appointments of J. C. Baseheart as engine sales manager, and F. M. Borwell as assistant engine sales manager for the Buda Division of the company's Tractor Group. At the A-C General Products Division, H. R. Godfrey, Jr., has been appointed assistant to the general manager.

Two appointments to the staff of its new Research and and Development Center are announced by **Littleford Bros., Inc.,** Cincinnati, Ohio. William T. Camm has been appointed chief of the design and development department, and T. J. Grueter is new design and development engineer. The center provides complete facilities for testing, demonstrating and developing new road construction and maintenance equipment products for Littleford's line of black top equipment.

The appointment of John C. Finn as assistant to sales manager-pipe, is announced by Carl W. Brown, sales manager-pipe, **United States Pipe and Foundry Co.,** 3300 First Ave., North, Birmingham 2, Ala. Whitney K. Stearns will take over as New England sales agent for the company.

1956

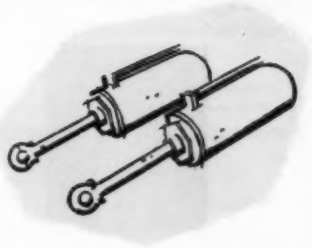
public works congress and equipment show

FORT WORTH, TEXAS
SEPTEMBER 23-26

sponsored by
American Public Works Association
1313 *E. 60th Street*
Chicago 37, Illinois

Collects refuse . . . not trouble

HEIL Colectomatic provides More working time with Fewer working parts, Less maintenance



SIMPLY DESIGNED. Here's simplicity itself. Two hydraulic cylinders handle the entire loading and packing operation, automatically. The Heil Colectomatic has no chains . . . no hydraulic motors . . . no flexible oil lines from body to tailgate . . . no body retainer plates. Heil design eliminates these trouble-making wear points and reduces maintenance costs . . . gives more time on the job, more efficient collection service.

EASILY OPERATED. Flick a lever and walk away—an entire loading and packing cycle completes itself in 22 seconds. Bulldozer action of packing plate "rolls" load out of hopper . . . exerts horizontal pressure to compress more refuse into the body. The Colectomatic's operating mechanism runs intermittently (not continuously as with chain-type) . . . reduces unproductive wear, cuts down on noise.

EASILY SERVICED in a matter of minutes. Simply open side panels of tailgate and lubricate mechanism from standing position. Entire operating mechanism is easily accessible for routine inspection and adjustment.

Get all the facts from your Heil distributor. Ask for a demonstration and see for yourself how the Colectomatic's simplicity-in-action can lower refuse collection costs for you.

BH-62

NEW HEIL MOVIE, "Made to Order," describes new Colectomatic in full sound and color. Address requests for free use to The Heil Co., Body and Hoist Division, Milwaukee 1, Wis.

THE HEIL CO. **DEPT 4386** **3043 W. MONTANA ST., MILWAUKEE 1, WISCONSIN**

Factories: Milwaukee, Wis., Hillside, N.J., Lancaster, Pa.

Tractor shovel, ditcher and crane team up to install new pipe line.

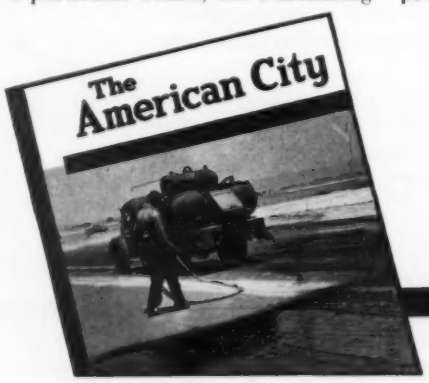
George G. Hyland
Commissioner of
Public Works

How Boston Buys Municipal Equipment

You can sell products to the City of Boston, Massachusetts, without bidding competitively against other manufacturers, if the Mayor approves. Let's follow the procedure in the Department of Public Works, which now owns over 400 pieces of equipment.

Public Works Commissioner Hyland's office writes specifications and initiates the request, which is passed along to the Purchasing Agent. If the Commissioner has not indicated a preference for a particular brand, the Purchasing Agent then advertises publicly for bids. However, a specific manufacturer's equipment can be requested. Statute Law allows the purchase to be negotiated without bidding, when the Mayor gives written permission. Boston is thus able to consider quality as well as price.

It is difficult for your salesmen to call personally on all the members of this purchasing group. But the Commissioner, Purchasing Agent and Mayor all subscribe to THE AMERICAN CITY. Advertising in THE AMERICAN CITY helps convince them of the superiority of your product. That's a sound investment.



The American City

470 Fourth Avenue, New York 16, N.Y.

The American City

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Public Administration Consultant
376 West Sixth Street
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ALBRIGHT & FRIEL, INC.
Consulting Engineers
Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators & Power Plants, Industrial Building, City Planning, Laboratory, Reports, Valuations.
3 Penn Center Plaza, Philadelphia 2

ALLEN & HOSHALL
Consulting Engineers
Mechanical—Civil—Electrical
Municipal Improvements
65 McCall Place
MEMPHIS, TENNESSEE

ALVORD BURDICK & HOWSON
ENGINEERS
Water Works — Sewage Disposal
Water Purification — Drainage
Flood Relief — Appraisals
Sewerage — Power Generation
20 North Wacker Drive, Chicago 6, Ill.

MYRON C. ANDERSON
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415 Church Street Evanston, Illinois
Phone: Greenleaf 5-8646

The American City Professional Service Directory

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Fire Alarm and Traffic Signal — Engineers and Consultants
P. O. Box 31 — Norwood, La.
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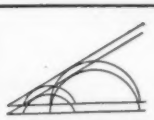
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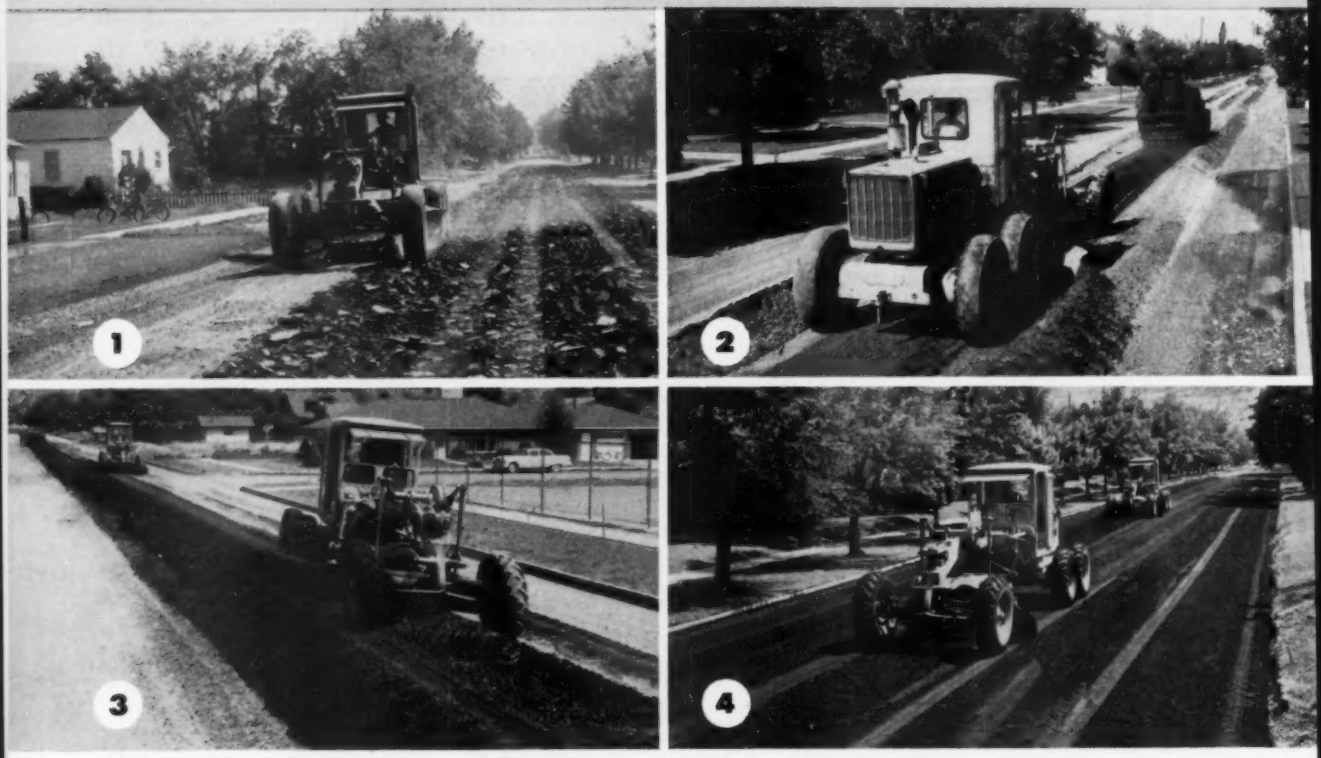
How City Manager Walton Taylor uses careful planning and CAT* equipment

TO GIVE MISSOULA A NEW FACE



Two No. 12s (1) rip up Missoula's potholed streets...(2) cut gravel from berm to mix with oil...(3) thoroughly work the oil mix...(4) lay mix on improved city streets.

230 miles of streets — too many of them going to potholes. Tight budget — getting tighter all the time. That was the problem in Missoula, Montana. That's the problem in lots of towns. Missoula's City Manager Walton Taylor is licking it with a vigorous 3-point program of reconstructing bad streets, seal coating the good ones, and putting in new drainage facilities. All the while, making every city dollar do 100 cents' worth of work.

Mr. Taylor had bought Caterpillar Motor Graders four times in the past, for other cities. So to help beat Missoula's budget squeeze, he turned to Caterpillar again.

He says, "My experience shows they're more economical, primarily because of the sturdiness with which they're built. They live up to their reputation for handling the hard jobs with no strain, and for taking long hours at low operating cost — with little or no down time." That's why Mr. Taylor has two Caterpillar No. 12 Motor Graders working for him right now.

The No. 12 has always been a cost-cutting machine. Now, two recent money-saving improvements make it a tter buy than ever.

New exclusive oil clutch practically does away with disc replacement, cuts down time to the bone.

New tubeless tires eliminate costly tube and flap trouble, can reduce tire down time by 80%.

Its positive controls, clear visibility, fast and accurate blade positioning make the No. 12 easier to operate. Mr. Taylor likes it because it'll carry a full 14-foot blade for maintenance work as easily as a 12-footer. And there are dozens of other reasons why this big yellow 115 HP machine makes an ideal public servant. Let your Caterpillar Dealer give you complete details.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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99% OF ALL CAT MOTOR GRADERS EVER BUILT ARE STILL AT WORK

MARK-TIME Parking Meters are an *asset* to any community

City officials all over the continent report complete satisfaction with their choice of the Mark-Time *Manual* meter.

Smart, neat appearance

Mark-Time parking meters are an *asset* to *any* street . . . *any* community. Every Mark-Time installation pays for itself and *makes money* for the community.

Trouble-free operation

The Mark-Time *manual mechanism* is definitely superior! It is automatically wound as each parker turns the handle. So called "automatic" meters require the services of clock winders once or twice a week.

Guaranteed collections

The Mark-Time sealed, self-locking coin box is *tamper-proof*—assures your city of 100% of the receipts.

Many factors in the design and rugged construction of the Mark-Time contribute to its lower overall cost and longer life. Consider **MARK-TIME** *first* for your next Parking Meter installation.

MARK-TIME **M. H. RHODES, INC.**
Hartford 6, Connecticut

Manufactured and Sold in Canada by: SPERRY GYROSCOPE OTTAWA Ltd., Ottawa, Ontario, Canada

This 1⅝-yd. Michigan sold itself to Lindenhurst after a full-scale demonstration.

Saving money for the taxpayers:

Why Lindenhurst, N. Y., bought a Michigan Tractor Shovel

To provide materials for highway maintenance, the Village of Lindenhurst, N. Y. recently bought part of a large sand and clay pit. Due to the soft loose footing in the pit, Lindenhurst officials assumed they would need a crawler-type Tractor Shovel to work it. But they also wanted to use the Tractor Shovel at highway repair sites, and this would involve the purchase of a low-boy trailer to move the crawler.

After a competitive demonstration of various makes of crawler and rubber-tired Tractor Shovels, Highway Supt. Henry May was amazed to find that one machine . . . the Michigan . . . could handle both types of work. Says Mr. May: "We bought the rubber-tired Michigan because it handles pit-work as well or better than a crawler—it outperformed all the other machines."

Working the pit

Every day Lindenhurst's 1⅝-yd Michigan drives 14 miles round trip from the Highway Department garage to the sand pit . . . at 27 mph. At the pit, it digs and stockpiles sand . . . mixes oil, gravel and sand into road repair patch, and loads trucks. The Michigan's exclusive power-train (torque converter, power-shift transmission and planetary axles are standard on every model) gives it the power and traction to work fast and effectively in the loose footing. What's more, abrasive sand creates absolutely no maintenance problems for the Michigan's big rubber tires . . . compared to the wear on the hundreds of moving track parts of a crawler.

Road repair jobs

To get from the pit to road repair jobs, Fred May, Lindenhurst's Michigan operator, simply shifts into travel gear and takes off on the road at 27 mph. No truck-trailer or expensive hauling costs involved. On road jobs the Michigan grades, bulldozes, backfills and cleans up.

On-the-job comparison

Before you consider buying any make or type of Tractor Shovel, do what Lindenhurst did: take a look at a Michigan *on-the-job*. The economic advantages of this machine will be obvious once you see it in action . . . fast and mobile, with more useable power and traction than you've ever seen on a rubber-tired Tractor Shovel. Ask your Michigan distributor to demonstrate. *You name the job.*

An illustrated 4-page folder gives complete details on the Lindenhurst operation—write for it.

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Construction Machinery Division

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